

Stantec Consulting Services Inc. 350 Missouri Avenue, Suite 100 Jeffersonville, IN 47130-3001 Tel: (812) 285-4060

Fax: (812) 285-4061

November 17, 2009

Kentucky Division of Water Water Quality Certification Section 200 Fair Oaks Lane Frankfort, KY 40601

Attention:

Mr. Jesse Robinson

Dear Mr. Robinson:

Reference:

E.ON-US/LG&E Cane Run Power Station

**Proposed Landfill Project** 

Louisville, Jefferson County, Kentucky

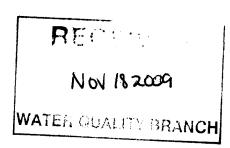
On behalf of our client, E.ON U.S., Stantec Consulting Services Inc (Stantec) respectfully submits the attached Sections 401 and 404 permit application package for a proposed project involving permanent impacts to the Waters of the Commonwealth at the Cane Run Power Station in Louisville, Kentucky. Upon approval of the floodplain application by Louisville/Jefferson County Metropolitan Sewer District (Louisville Metro Sewer), the permit application package will be updated to include supporting documentation.

E.ON U.S. is proposing to create a storage landfill for the purpose of containing coal combustion byproducts (CCB). Cane Run Power Station is an electric generating station that includes three coal-fired generating units (Units 4, 5 and 6) equipped with Flue Gas Desulfurization (FGD) systems. Units 4 and 5 have "lime" FGD systems and Unit 6 has a "dual alkali" FGD system.

The raw materials used at Cane Run Station consist of carbide lime and coal. The carbide lime, a byproduct from acetylene, primarily calcium hydroxide is used in slurry form in the scrubbers to control air emissions. The coal is from western Kentucky, and is typical of that mined in the region's coal fields.

The by-products generated during the combustion of coal at Cane Run Station include fly ash, bottom ash, and FGD sludge, Fly ash from Units 4, 5, and 6 is combined with the FGD sludge in a Sludge Processing Plant (SPP). The processed waste, consisting of blended fly ash, dewatered FGD sludge, and lime (the stabilization additive), is managed in an on-site special waste landfill. Bottom ash is sluiced to an ash pond located on-site.

The current special waste landfill is nearing capacity, and a new CCB landfill on the Cane Run Power Station property is proposed. The proposed landfill design is approximately 61.2 acres in size, with an estimated 5.7 million cubic yards of storage capacity. Clay fill materials will be borrowed to create a liner system before dry CCB materials would be compacted in the landfill. Borrow material will be hauled to the landfill from a nearby Metropolitan Sewer District project. Once operational storage capacity of the landfill is met, it will be capped with 24 inches of vegetated soil as per the requirements of the KY Division of Waste Management.



#### Stantec

November 17, 2009

Reference:

E.ON-US/LG&E Cane Run Power Station

**Proposed Landfill Project** 

Louisville, Jefferson County, Kentucky

Page 2 of 2

The proposed activities would create permanent impacts to JWUS. Impacts would include 1,617 linear feet (0.137 acre) of intermittent stream and 1,845 linear feet (0.403 acre) of ephemeral stream, for a total of 3,462 linear feet (0.540 acre). In addition, 1.597 acre of wetland will be impacted by the project. Mitigation is proposed for these impacts through the payment of in-lieu fees, as well as the purchase of forested wetland mitigation credit through the PTRL Mitigation Bank. The KDOW WQC Fee Payment form will be submitted promptly following financial processing by E.ON US.

Thank you for consideration of this application. Please do not hesitate to call me or John Dovak with questions at (812) 285-4060.

Sincerely,

Stephen D. Hall Senior Associate Tel: (812) 285-4060

Fax: (812)285-4061

Stephen.Hall@stantec.com

Attachment:

Section 404 and 401 Permit Application Package

c. Ms. Lee Anne Devine, USACE, CERL-OP-F, P.O. Box 59, Louisville, KY 40201-0059



# E.ON-US/LG&E Cane Run Power Station Proposed Landfill Project

Jefferson County, Kentucky Section 401/404 Clean Water Act (CWA) Individual Permit Application Package

RECEIVED

NOV 1 8 2009

WATER QUALITY BRANCH

November 9, 2009

# E.ON-US, LG&E **E.ON-US/LG&E CANE RUN POWER STATION** PROPOSED LANDFILL PROJECT LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

# SECTION 401/404 CLEAN WATER ACT (CWA) INDIVIDUAL PERMIT APPLICATION PACKAGE

#### Section 404 CWA Department of the Army Permit Application I.

- **Permit Application Form**
- 2. Block 22: Project Impacts Summary Tables
  - Table 1. Impacts to Wetlands
  - Table 2. Impacts to Streams
- 3. **Block 24: Adjacent Property Owners**
- 4. **Avoidance and Minimization Statement**

#### **Section 401 Water Quality Certification Application** II.

- **Permit Application Form** 1.
- 2. Water Quality Certification Fee Payment Form

#### III. **Jurisdictional Determination**

- Jurisdictional Waters of the United States Summary Tables
  - Table 3. Delineated Jurisdictional Stream Segments
  - Table 4. Delineated Jurisdictional Wetlands
- Rapid Bioassessment Protocol (RBP) Data Sheets 2.
- 3. Wetland Delineation Data Sheets
- 4. **Jurisdictional Determination Forms** 
  - Perennial Streams/Wetlands i.
  - ii. Intermittent Streams/Wetlands
  - iii. **Ephemeral Streams/Wetlands**
  - Non-Jurisdictional Streams/Wetlands iv.

#### IV. **Compensatory Mitigation**

- 1. Mitigation Statement
- Table 5. In-Lieu Fee Calculation Table 2.

#### ٧. **Agency Correspondence**

- Threatened and Endangered Species Correspondence 1.
  - i. Kentucky State Nature Preserves Commission
  - ii. U.S. Fish and Wildlife Service
  - Kentucky Department of Fish and Wildlife Resources iii.
- 2. State Historic Preservation Officer

A Cultural Resource Survey for a Borrow Area, Settling Ponds, and Flyash Storage Area at the LG&E Cane Run Generating Plant in Jefferson County, Kentucky

# E.ON-US, LG&E E.ON-US/LG&E CANE RUN POWER STATION PROPOSED LANDFILL PROJECT LOUISVILLE, JEFFERSON COUNTY, KENTUCKY SECTION 401/404 CLEAN WATER ACT (CWA) INDIVIDUAL PERMIT APPLICATION PACKAGE

### VI. Project Maps

- Figure 1. Location Map
- Figure 2. Jurisdictional Waters of the US Map (36" x 24" Color)
- Figure 2-1 Jurisdictional Waters of the US Map (8.5" x 11" Black and White)
- Figure 2-2 Jurisdictional Waters of the US Map (8.5" x 11" Black and White)
- Figure 3. Proposed Impacts Map (36" x 24" Color)
- Figure 3-1 Proposed Impacts Map (8.5" x 11" Black and White)

# Section 404 CWA Department of the Army Permit Application

**Permit Application Form** 

#### APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

#### OMB APPROVAL NO.

Public reporting burden for this collection of information is estimated to average 5 hours per response, including the time for reviewing instructions, searching existing data evources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other spect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Toperations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

#### PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10: 1413, Section 404. Principal Purpose: These laws require authorizing activities in, or affecting, navigable waters of the United States, the discharge or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Routine Uses: Information provided on this form will be used in evaluating the application for a permit. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

of the proposed activity, An application			to the District Engineer naving jurisdiction over the tocation				
		TO BE FILLED BY THE COI	RPS)				
1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED				
	(ITEMS BELOW	TO BE FILLED BY APPLIC	ANT				
5. APPLICANT'S NAME		8. AUTHORIZED AGENT'S	NAME AND TITLE (an agent is not required)				
E.ON-US (LG&E)		Stantec Consulting Serv	ices Inc.				
6. APPLICANT'S ADDRESS E.ON-US Attn: W. Paul Puckett 220 West Main Street Louisville, KY 40232		9. AGENT'S ADDRESS Stantec Consulting Serv Attn: Stephen Hall 350 Missourl Ave., Suite Jeffersonville, IN 47130					
7. APPLICANT'S PHONE NOs. V a. Residence b. Business 502-627-4659		10. AGENT'S PHONE NOs. \ a. Residence b. Business 812-786-31					
	STATEM	ENT OF AUTHORIZATION					
I hereby authorize, <u>Stephen Hall,</u> request, supplemental information.			nt in the processing of this application and to furnish, upor				
APPLICANT'S SIGN	ATURE	DATE					
	NAME, LOCATION, AND D	ESCRIPTION OR PROJECT	FOR ACTIVITY				
12. PROJECT NAME OR TITLE  Cane Run Generating St	•						
13. NAME OF WATERBODY, IF Un-named Tributaries to Mill Cre		5252 Cane Run Ro	14. PROJECT STREET ADDRESS (if applicable) 5252 Cane Run Road Louisville, KY 40216				
15. LOCATION OF PROJECT Jefferson COUNTY	Kentucky STATE						
40 OTHER LOCATION RECOGNICE	SOME IT VALOUALL face inches which are a	tanilan Taumahin Danas Latit on a	when Assessment Dersel Mumber for everyne				

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) Section, Township, Range, Lat/Lon, and/or Accessors's Parcel Number, for example.

The proposed E.ON-US Cane Run Landfill Expansion project encompasses approximately 60 acres within the Cane Run facility property, near Mill Creek in Louisville, Jefferson County, Kentucky. The project site is located off Cane Run Road within the USGS Lanesville Quad, at latitude / longitude coordinates 38.181\* N, 85.883 \* W.

17. DIRECTIONS TO THE SITE

From Louisville, take I-284/Watterson Expressway to Exit 5B to Cane Run Road/KY-1934. Head southwest on Cane Run Road for approximately 3.3 miles. Turn right onto Dover Rd/KY-1934 and then left onto KY-1934. The E.ON-US/LG&E Cane Run Facility will be on the right.

	E.ON-US is proposing to expand their landfill operations for the purpose of storing coal combustion by-products (CCB) produced at the Cane Run Power Station. The proposed landfill design is approximately 61.2 acres in size, with an estimated 5.7 million cubic yards of storage capacity. Clay fill materials will be borrowed to create a liner system before dry CCB materials would be compacted in the landfill. Once operational storage capacity is met, the landfill will be capped with 24 inches of vegetated soil cover.
19.	Project Purpose (Describe the reason or purpose of the project, see instructions)
	The purpose of the project is to provide storage capacity for CCB generated from the Cane Run Station.
	USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED
20.	Reason(s) for Discharge
	In order to provide adequate, safe and cost-effective storage for the CCB generated by this facility, it is necessary to construct an on-site landfill
21.	Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards
	Soil and rock will be borrowed and used to fill waters; approximately 1,578 cubic yards.
22.	Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
	Proposed activities involve impacts to 8 ephemeral streams (1,845 feet, 0.403 acres), and 2 intermittent streams (1,617 feet, 0.137 acres). SEE ATTACHMENTS FOR MORE DETAIL
23.	is Any Portion of the Work Aiready Complete? Yes No X_ IF YES, DESCRIBE THE COMPLETED WORK
24.	
	attach a supplemental list).  All property directly adjoining the project area is owned by the permitee.
25.	List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.  AGENCY TYPE APPROVAL* IDENTIFICATION NUMBER DATE APPLIED DATE APPROVED DATE DENIED
26.	Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.
	SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE
	The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.
	18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully faisifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent between the contain any false, fictitious or fraudulent between the contain any false, first than \$10.000 or impresented not more than \$10.000 o

18. Nature of Activity (Description of project, include all features)

**Block 22: Project Impacts Summary Tables** 

Table 1. Impacts to Wetlands

Impact Type	JWUS <sup>1</sup> Wetland ID	Cowardin Classification	Area of Impact (acres)
Landfill	Wetland A	PEM1	1.504
Landfill	Wetland L	PFO1	0.093
		TOTAL:	1.597

Table 2. Impacts to Streams

Impact Type	JWUS <sup>1</sup> Stream ID	Flow Regime	Linear Feet of Impact	Area of Impact (acres)
Landfill	E-1a	Ephemeral	846	0.194
Landfill	E-1	Ephemeral	71	0.016
Landfill	E-2	Ephemeral	57	0.013
Landfill	E-3	Ephemeral	96	0.022
Landfill	E-4	Ephemeral	543	0.125
Landfill	E-6	Ephemeral	6	0.001
Landfill	E-7	Ephemeral	87	0.016
Landfill	E-9	Ephemeral	139	0.016
Landfill	I-1	Intermittent	1094	0.101
Landfill	l-2	Intermittent	523	0.036
		TOTAL:	3,462	0.540

<sup>&</sup>lt;sup>1</sup>Jurisdictional Waters of the United States

**Block 24: Adjacent Property Owners** 

Name of Property	Owner(s)	Louisville and Jefferson County Riverport					
Address	· · · · <u></u>	6900 Riverport Drive (multiple)					
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502) 935-6	024					
Name of Property	Owner(s)		Walker, Gre	egory & Debra			
Address		534	9 Cane Run	Road			
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502) 290-0	0612					
Name of Property	Owner(s)	Bui	rkhead, Sher	ry G & Boyd Brud	се		
Address		5307 (	Galaxie Dr. (ı	multiple)			
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502) 449-1	068					
Name of Property	Owner(s)		Desantia	ago, Panfilio			
Address	.,	534	5 Cane Run	Road			
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502) 447-9	9522					
Name of Property	Owner(s)		Fraley, Cu	ırtis & Bonnie			
Address		3416 K	ramers Lane				
City	Louisville	State	KY	Zip Code	40216		
Phone No.	Unlisted	<u></u>					
Name of Property	Owner(s)	Mil	es, Philburn	E. Jr. & Tammy I	И.		
Address		533	9 Cane Run	Road			
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502) 448-1	1192		<del>.</del>			
Name of Property	Owner(s)		Cunninal	nam, Mitchell			
Address		533	7 Cane Run				
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502)448-3	_					
Name of Property	Owner(s)		Givens Joe	D. & Theda D.			
Address		533	35 Cane Run				
City	Louisville	State	KY	Zip Code	40258		
Phone No.	(502) 447-5			2,p 0000	70200		
Name of Property	Owner(s)		Miller Cecil	D. & Magdalen			
Address		522	33 Cane Run				
	Louisville	State	KY	Zip Code	40258		
City Phone No.	(502) 447-3	_		210 0008	40200		
riidile NO.	(UUZ) 44/-	700 <b>3</b>					

Name of Property	Owner(s)	Fey, Bill & Janet						
Address		6519 Astral Dr.						
City	Louisville	State	KY	Zip Code	40258			
Phone No.	Unlisted							
Name of Property	Owner(s)		Schrader, Sta	nley & Anna				
Address			3429 Rudd Ave					
City	Louisville	State	KY	Zip Code	40212			
Phone No.	(502) 290-59	958		•				
Name of Property	Owner(s)		Boaz, Sh	irley A.				
Address		53	319 Cane Run Ro	oad				
City	Louisville	State	KY	Zip Code	40258			
Phone No.	(502) 449-60	077		,				
Name of Property	Owner(s)		Hack, I	David				
Address	.,	53	317 Cane Run Ro					
City	Louisville	State	KY	Zip Code	40258			
Phone No.	Unlisted			·				
Name of Property	Owner(s)		Wheeler, Dona	ald L. & Doris				
Address		53	315 Cane Run R					
City	Louisville	State	KY	Zip Code	40258			
Phone No.	(502) 448-8	_		•				
Name of Property	Owner(s)		Wheeler, Ronal	d L. & Bettv L.				
Address		53	313 Cane Run R					
City	Louisville	State	KY	Zip Code	40258			
Phone No.	(502) 447-5	_		- <b>,</b>				
Name of Property	Owner(s)		Greer, Patrick	N & Dena R				
Address		53	311 Cane Run R		<del></del>			
City	Louisville	State	KY	Zip Code	40258			
Phone No.	(502) 448-2	_		Zip oodo	70200			
Name of Property	Owner(s)		Wolf, C	harles				
		5'	200 Cane Run R					
Address City	Louisville	State	KY	Zip Code	40258			
Phone No.	(502) 448-8			Zip Code	40250			
Name of Description	Over a r/al		1 :441 _ 17	athur C				
Name of Property	Owner(s)		Little, Ka					
Address			307 Cane Run R		40050			
City	Louisville	State	KY	Zip Code	40258			
Phone No.	(502) 742-8	879						

Name of Property	Owner(s)			(c/o Michael Cu	ushing)
Address		3001	1 Fort Pickens	Road	
City	Lagrange	State	KY	Zip Code	40031
Phone No.	(502) 222-50	505			
Name of Property	Owner(s)		Cissell,	Frank M.	
Address	• • • • • • • • • • • • • • • • • • • •	50	013 Tumeric La	ane	
City	Louisville	State	KY	Zip Code	40258
Phone No.	(502) 935-6	- 812		•	
Name of Property	Owner(s)		Lashley, Ga	rry & Cheryl	
Address		523	33 Cane Run F		
City	Louisville	State	KY	Zip Code	40216
Phone No.	(502) 447-1	_		- '	
, ,,,,,,,	(/	<u>-</u>			
Name of Property	Owner(s)		Skagas, Jon	T. & Elizabeth	
Address		52	53 Cane Run F		
City	Louisville	State	KY	Zip Code	40216
Phone No.	(502) 447-4	_			
, ,,,,,,			•		
Name of Property	Owner(s)		Cravens. B	ill & Mary L.	
Address		2	272 Blue Lick		
City	Shepherdsville		KY	Zip Code	40165
Phone No.	(502) 921-0	_		_ 2,6 0000	
i none ivo.	(302) 321-0	100			
Name of Property	Owner(s)		Voot Bernar	d & Shirley J	
Address		52	25 Cane Run F		
City	Louisville	State	KY KY	Zip Code	40216
Phone No.	(502) 448-0				702.0
i none ivo.	(302) 440-0	<del>011</del>			
Name of Property	Owner(e)	Louisville :	and lefferson (	County Metro G	overnment
Address		Louisville	444 S.5 <sup>th</sup> Stre		ovorminone
City	Louisville	State	KY	Zip Code	40202
Phone No.	(502) 574-5	_		_ 210 0000	10202
FIIOHE NO.	(302) 314-3	010			
Name of Property	Owner(e)	C .	T Gernert Inc	, (c/o Dave Kelto	nn)
Address			73 Stone Creek		211)
City	Lexington	State	KY	Zip Code	40503
Phone No.	(859) 294-0	_		_ 210 0000	40000
Phone IVO.	(009) 294-0	070			
Name of Property	Ournor(a)		Sadlar	Lavania	
Name of Property	Owner(s)	679	30 Elmwood Av	Lavenia	
Address	l ouisvilla	***	KY		40258
City	Louisville	_ State		_ Zip Code	40230
Phone No.	(502) 448-0	9/0			

Name of Property	Owner(s)	Wallace, James Roy				
Address			6628 Huff Land	9		
City	Louisville	State	KY	Zip Code	40258	
Phone No.	(502) 447-9	979		,		
Name of Property	Owner(s)		Bramer, Joh	n & Sharon		
Address	• • •	70	003 Ridge Run F	Road		
City	Georgetown	State	IN	Zip Code	47122	
Phone No.	(812) 951-3	185		•		
Name of Property	Owner(s)		IC and K &	l Terminal		
Address	. ,		Address Unkno	wn - Franchise		
City		State	KY	Zip Code		
Phone No.		<del>-</del>		· ·		
Name of Property	Owner(s)		Jerry H	argrove		
Address			213 Marengo D	r.		
City	Louisville	State	KY	Zip Code	40243	
Phone No.	Unlisted	<u> </u>		· ·		

**Avoidance and Minimization Statement** 

### AVOIDANCE AND MINIMIZATION STATEMENT E.ON-US/LG&E CANE RUN POWER STATION PROPOSED LANDFILL PROJECT LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

To avoid and minimize impacts to Jurisdictional Waters of the U.S. (JWUS) from the proposed project, Stantec Consulting Services, Inc. identified the opportunity to partner with the Louisville Metro Sewer Department (MSD) to obtain excess material generated from a planned equalization basin project at the Derrick R. Guthrie Water Quality Treatment Center on Lower River Road in Louisville, Kentucky.

MSD's planned project includes the construction of an open air basin that will store up to 19.3 million gallons of excess flow during extreme wet weather events. The contents of the equalization basin will be released back into the treatment process at a later time when other flows to the plant have subsided enough to accommodate the additional volume of wastewater. The basin will generate approximately 78,000 cubic yards of excess material that will be hauled to the proposed Cane Run landfill. No JWUS will be impacted by MSD's equalization basin project.

By obtaining this excess material from MSD, E.ON-US/LG&E will be able to avoid impacts to more than 4,000 feet of ephemeral and intermittent streams and wetland acreage. Compared to the original Jurisdictional Determination study, utilizing this excess material will reduce JWUS impacts by approximately 15 of the total stream lengths/wetland acreages previous identified. Other alternatives explored in preliminary landfill design studies were estimated to cause greater impact to streams and wetlands.

# Section 401 Water Quality Certification Application

**Permit Application Form** 

# COMMONWEALTH OF KENTUCKY NATURAL RESOURCES & ENVIRONMENTAL PROTECTION CABINET DEPARTMENT FOR ENVIRNOMENTAL PROTECTION DIVISION OF WATER

# APPLICATION FOR PERMIT TO CONSTRUCT ACROSS OR ALONG A STREAM AND / OR WATER QUALITY CERTIFICATION

Chapter 151 of the Kentucky Revised Statutes requires approval from the Division of Water prior to any construction or other activity in or along a stream that could in any way obstruct flood flows or adversely impact water quality. If the project involves work in a stream, such as bank stabilization, dredging or relocation, you will also need to obtain a 401 Water Quality Certification (WOC) from the Division of Water. This completed form will be forwarded to the Water Quality Branch for WQC processing. The project may not start until all necessary approvals are received from the KDOW. For questions concerning the WQC process, contact the WQC section at 502/564-3410.

If the project will disturb more than 1 acre of soil, you will also need to complete the attached Notice of Intent for Storm Water Discharges, and return both forms to the Floodplain management Section of the KDOW. This general permit will require you to create an implement an erosion control plan for the project.

1.	OWNER:	E.ON-US: Attn: W. Pau live name of person(s), company	il Puckett	owner of proposed project.
Give mail Mail Mail Mail Mail Mail Mail Mail M	Louisville, K			
				Paul.Puckett@eon-us.com
2.				
	ADDDESS.			RREF IDAD OWDER.
	ADDRESS:			
	TELEPHONE #:	<u> </u>		Stephen.Hall@stantec.com
3.				
	Contac TELEPHONE #:	t Division of Water if waiver car	be granted. EMAIL:	
	approximately 61.2 a FML liner overlain I this construction). operational storage	acres in size, with an estimatory a drainage layer of grade Clay fill materials will be	ated 5.7 million cubic yated bottom ash (CCB mare borrowed to construct landfill will be capped.	un Power Station. The proposed landfill design is ards of storage capacity. The landfill will include an terial produced at the site and beneficially reused for t 24-inch thick cover on all exposed sides. Once ed with at least 24 inches of vegetated soil
5.	COUNTY:	Jefferson NE	AREST COMMUNIT	Y: Louisville
6.				JDE: 38.181° N, 85.883° W
7.	STREAM NAME:	UT's to Mill Creek	WATERSI	HED SIZE (in acres):1925_acres
8.	LINEAR FEET OF	STREAM IMPACTED:	3,462 Linear Feet of	of Ephemeral and Intermittent Stream Impact
9.	Head southwest	on Cane Run Road for a	approximately 3.3 miles	Expressway to Exit 5 B to Cane Run Road/ KY-1934  Turn right from Greenbelt Highway onto Dove the E.ON-US/LG&E Cane Run Facility on the right

10. 11.	IS ANY PORTION OF THE REQUESTED PROJECT NOW COMPLETE?   Yes X No If yes, identify the completed portion on the drawings you submit and indicate the date activity was completed.  ESTIMATED BEGIN CONSTRUCTION DATE:   May 2012
12.	ESTIMATED END CONSTRUCTION DATE: December 2013
13.	HAS A PERMIT BEEN RECEIVED FROM THE US ARMY, CORPS of ENGINEERS? 13 Yes X No If yes, attach a copy of that permit.
14.	THE APPLICANT MUST ADDRESS PUBLIC NOTICE:
	(a) PUBLIC NOTICE HAS BEEN GIVEN FOR THIS PROPOSAL BY THE FOLLOWING MEANS:  Public notice in newspaper having greatest circulation in area (provide newspaper clipping or affidavit)  Adjacent property owner(s) affidavits (Contact Division of Water for requirements.)
	(b) X I REQUEST WAIVER OF PUBLIC NOTICE BECAUSE:
	Stantec and E.ON-US will publish public notices and/or hold public meetings during waste permitting process and 404 permitting process.  Contact Division of Water for requirements.
15.	I HAVE CONTACTED THE FOLLOWING CITY OR COUNTY OFFICIALS CONCERNING THIS PROJECT:
	MSD has been contacted on several occasions regarding the proposed activities. MSD personnel have participated in preliminary planning associated with the proposed construction and their input was sought regarding potential flooding impacts presented by the proposed locations. Stantec and E.ON-US will continue to involve appropriate members of City and County government to ensure the proposed project meets City and County Regulations.
	Give name and title of person(s) contacted and provide copy of any approval city or county may have issued.
16.	LIST OF ATTACHMENTS:  **See Attached 'Permit Application Outline'**  List plans, profiles, or other drawings and data submitted. Attach a copy of a 7.5 minute USGS topographic map clearly showing the project location.
17.	I, Paul Puckett (owner) CERTIFY THAT THE OWNER OWNS OR HAS EASEMENT RIGHTS ON
	ALL PROPERTY ON WHICH THIS PROJECT WILL BE LOCATED OR ON WHICH RELATED
	CONSTRUCTION WILL OCCUR (for dams, this includes the area that would be impounded during the design flood).
18.	REMARKS: Floodplain Permit Application submission is awaiting Louisville Metro Sewer District Approval.
	I hereby request approval for construction across or along a stream as described in this application and any accompanying documents. To the best of my knowledge, all the information provided is true and correct.
	SIGNATURE: Whoulf shitt
	Owner or Agent sign here. (If signed by Agent, a Power of Attorney should be attached.)  DATE:
	SIGNATURE OF LOCAL FLOODPLAIN COORDINATOR:
	Permit application will be returned to applicant if not properly endorsed by the local floodplain coordinator.
	DATE:
	SUBMIT APPLICATION AND ATTACHMENTS TO:
	Floodplain Management Section

Kentucky Division of Water
Water Quality Certification Section
200 Fair Oaks Lane
Frankfort, KY 40601

Water Quality Certification Fee Payment Form The KDOW WQC Fee Payment form will be submitted promptly following financial processing by E.ON US.

**Jurisdictional Determination** 

Jurisdictional Waters of the United States
Summary Tables

JURISDICTIONAL WATERS OF THE UNITED STATES SUMMARY TABLES E.ON-US/LG&E CANE RUN POWER STATION PROPOSED LANDFILL PROJECT LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

**TABLE 3. Delineated Jurisdictional Stream Segments** 

JWUS <sup>1</sup> Stream ID	Stream Name	Latitude	Longitude	Flow Regime	Watershed Area (acres)	Length of Segment (ft)	Estimated Area of Stream (ac)	RBP <sup>2</sup> ID	RBP Values	Quality
E-1a	UT to Mill Creek Cutoff	38.180207°	-85.884296°	Ephemeral	4.632	845.96	0.19420569	RBP 25	62	Poor
E-1	UT to Mill Creek Cutoff	38.181668°	-85.884677°	Ephemeral	0.172	71.06	0.01631313	RBP 26	62	Poor
E-2	UT to Mill Creek Cutoff	38.181668°	-85.884677°	Ephemeral	0.195	56.51	0.00518916	RBP 11	62	Poor
E-3	UT to Mill Creek Cutoff	38.181974°	-85.884078°	Ephemeral	0.133	95.89	0.02201331	RBP 26	62	Poor
E-4	UT to Mill Creek Cutoff	38.181838°	-85.883035°	Ephemeral	1.920	543.03	0.02493251	RBP 17	20	Poor
E-5	UT to Mill Creek Cutoff	38.183566°	-85.883761°	Ephemeral	3.835	524.45	0.02407943	RBP 4	89	Poor
E-6	UT to Mill Creek Cutoff	38.183488°	-85.883853°	Ephemeral	0.324	31.51	0.00217011	RBP 3	50	Poor
E-7	UT to Mill Creek Cutoff	38.18173°	-85.88101°	Ephemeral	0.160	87.41	0.01605326	RBP 13	50	Poor
E-8	UT to Mill Creek Cutoff	38.182458°	-85.881819°	Ephemeral	0.220	96.34	0.00663499	RBP 12	62	Poor
E-9	UT to Garrison Ditch	38.180807°	-85.880022°	Ephemeral	0.892	379.37	0.04354568	RBP 15	42	Poor
E-10	UT to Garrison Ditch	38.181591°	-85.880542°	Ephemeral	0.583	413.42	0.07592654	RBP 13	50	Poor
E-11	UT to Garrison Ditch	38.181063°	-85.879709°	Ephemeral	0.239	91.79	0.01264325	RBP 22	111	Poor
E-12	UT to Garrison Ditch	38.180893°	-85.879386°	Ephemeral	1.276	402.12	0.03692562	RBP 21	93	Poor
E-13	UT to Garrison Ditch	38.181017°	-85.879536°	Ephemeral	0.090	47.14	0.00216437	RBP 23	111	Poor
E-14	UT to Garrison Ditch	38.180993°	-85.879391°	Ephemeral	0.082	58.6	0.00269054	RBP 23	111	Poor

# JURISDICTIONAL WATERS OF THE UNITED STATES SUMMARY TABLES E.ON-US/LG&E CANE RUN POWER STATION PROPOSED LANDFILL PROJECT LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

TABLE 3.	TABLE 3. Delineated Jurisdictional Stream Segments (CONTINUED)									
E-15	UT to Garrison Ditch	38.177877°	-85.877815°	Ephemeral	0.637	116.96	0.00537006	RBP 17	20	Poor
	LIT to MILL Consider	38.180957°	-85.878511°					RBP 18	102	Poor
E-16	UT to Mill Creek Cutoff	38.180223°	-85.878174°	Ephemeral	18.506	974.07	0.15653099	RBP 20	117	Poor
	Outon	38.179449°	-85.877681°					RBP 24	118	Poor
E-17	UT to Mill Creek Cutoff	38.180499°	-85.878424°	Ephemeral	0.089	31.5	0.00216942	RBP 19	94	Poor
E-18	UT to Mill Creek Cutoff	38.180863°	-85.878296°	Ephemeral	1.820	524.64	0.03613223	RBP 19	94	Poor
E-19	UT to Mill Creek Cutoff	38.1862°	-85.879941°	Ephemeral	0.378	79.52	0.01095317	RBP 5	79	Poor
E-20	UT to Mill Creek Cutoff	38.186255°	-85.88061°	Ephemeral	0.945	240.27	0.03309504	RBP 5	79	Poor
E-21	UT to Mill Creek Cutoff	38.185786°	-85.881098°	Ephemeral	0.508	64.8	0.00892562	RBP 5	79	Poor
E-22	UT to Mill Creek Cutoff	38.185457°	-85.881526°	Ephemeral	0.691	104.42	0.01438292	RBP 5	79	Poor
E-23	UT to Mill Creek Cutoff	38.185092°	-85.882037°	Ephemeral	1.000	105.22	0.01449311	RBP 5	79	Poor
E-24	UT to Mill Creek Cutoff	38.184834°	-85.881626°	Ephemeral	0.454	41.63	0.00573416	RBP 5	79	Poor
E-25	UT to Mill Creek Cutoff	38.184725°	-85.88176°	Ephemeral	0.260	30.97	0.00426584	RBP 5	79	Poor
E-26	UT to Mill Creek Cutoff	38.183109°	-85.875742°	Ephemeral	1.116	180.51	0.02486364	RBP 10	37	Poor
E-27	UT to Mill Creek Cutoff	38.183738°	-85.876758°	Ephemeral	6.636	499.07	0.06874242	RBP 8	49	Poor
E-28	UT to Mill Creek Cutoff	38.183738°	-85.876888°	Ephemeral	0.506	50.55	0.00696281	RBP 8	49	Poor
E-29	UT to Mill Creek Cutoff	38.183544°	-85.876664°	Ephemeral	0.383	105.5	0.01453168	RBP 8	49	Poor
E-30	UT to Mill Creek Cutoff	38.183627°	-85.876371°	Ephemeral	0.315	83.8	0.0115427	RBP 8	49	Poor
E-31	UT to Mill Creek Cutoff	38.184282°	-85.87623°	Ephemeral	7.854	275.07	0.07577686	RBP 8	49	Poor

# JURISDICTIONAL WATERS OF THE UNITED STATES SUMMARY TABLES E.ON-US/LG&E CANE RUN POWER STATION PROPOSED LANDFILL PROJECT

LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

TABLE 3 Delineated Jurisdictional Stream Segments (CONTINUED)

I ABLE 3.	Delineated Juris	aictional Str	eam Segmer	nts (CONTIN	UED)					
E-32	UT to Mill Creek Cutoff	38.184571°	-85.876127°	Ephemeral	0.317	205.47	0.01886777	RBP 28	49	Poor
E-33	UT to Mill Creek Cutoff	38.184731°	-85.876019°	Ephemeral	0.390	89.12	0.00818365	RBP 28	49	Poor
E-34	UT to Mill Creek Cutoff	38.185285°	-85.876848°	Ephemeral	2.312	474.61	0.04358219	RBP 28	49	Poor
E-35	UT to Mill Creek Cutoff	38.185125°	-85.876986°	Ephemeral	2.995	640.17	0.05878512	RBP 28	49	Poor
E-36	UT to Mill Creek Cutoff	38.183179°	-85.878409°	Ephemeral	3.915	403.14	0.03701928	RBP 27	61	Poor
E-37	UT to Mill Creek Cutoff	38.183111°	-85.878508°	Ephemeral	0.300	64.56	0.00592837	RBP 27	61	Poor
E-38	UT to Mill Creek	38.182376°	-85.879696°	Ephemeral	2.541	470.69	0.04322222	RBP 9	59	Poor
L-36	Cutoff	38.183203°	-85.87966°	Epiteriletai	2.541	470.03	0.0432222	RBP 27	61	Poor
E-39	UT to Mill Creek Cutoff	38.183304°	-85.879635°	Ephemeral	0.206	16.78	0.00154086	RBP 27	61	Poor
E-40	UT to Mill Creek Cutoff	38.182997°	-85.878353°	Ephemeral	0.205	20.33	0.00186685	RBP 27	61	Poor
I-1	UT to Mill Creek Cutoff	38.18204°	-85.884476°	Intermittent	21.946	1467.12	0.13472176	RBP 11	62	Poor
I-2	UT to Mill Creek Cutoff	38.182686°	-85.881343°	Intermittent	14.289	916.14	0.06309504	RBP 12	62	Poor
I-3	UT to Mill Creek Cutoff	38.186017°	-85.880045°	Intermittent	23.494	1774.6	0.12221763	RBP 1	103	Poor
P-1	Mill Creek Cutoff	38.184475°	-85.883238°	Perennial	1,925.074	6160.79	8.48593664	RBP 2	93	Poor
P-2	Garrison Ditch	38.180164°	-85.879108°	Perennial	35.838	1454.57	0.40070799	RBP 16	39	Poor
P-3	UT to Mill Creek Cutoff	38.181654°	-85.875217°	Perennial	225.894	1094.19	0.30142975	RBP 6	83	Poor
P-4	UT to Mill Creek Cutoff	38.182251°	-85.875271°	Perennial	410.997	1219.3	0.69978191	RBP 7	41	Poor

	Ephemeral:	9,638	1.199
Sub Totals	Intermittent:	4,158	0.320
	Perennial:	9,929	9.888
	Grand Total:	23,725	11.407

**TABLE 4. Delineated Jurisdictional Wetlands** 

JWUS <sup>1</sup> Wetland ID	Associated Stream Name	Cowardin Classification	Area (acres)
Wetland A	I-2	PEM1	1.505
Wetland H	P-2	PSS1	0.057
Wetland I	E-16	PFO1	0.423
Wetland J	E-18	PFO1	0.793
Wetland K	E-18	PFO1	0.174
Wetland L	I-1	PFO1	0.093
	То	tal Wetland Area:	3.045

<sup>&</sup>lt;sup>1</sup> Jurisdictional Waters of the United States

Rapid Bioassessment Protocol (RBP) Data Sheets

Project: Project Owner: HUC 14:	Cane Run Landfill E-ON/LG&E	<del>-</del>	
HUC 14:			
1100_14.	05140101320050	Mill Cre	ek Cutoff
HUC_10:	051410101320	Beargra	ss Creek
HUC_8:	05140101	Salt	River
Stream Name:	UT to Mill Creek Cutoff	Width (ft):	3.0
Flow Regime:	Intermittent, Non-seasonal	Depth (ft):	1.5
Channel is:	Natural <u>*</u>	Lat:	38.18602
Water is:	Absent	Long:	-85.88005
Investigators	Jared Edwards, Rita Davis	Temp (°F)	n/a
	1	рН	n/a_
		Cond (4mhos):	n/a

N	Gradient S	tream		
Ī	State:	KY	Station ID:	RBP-1
Ì	County:	Jefferson	Stream ID:	I-3
1	City	Louisville	Date:	7/16/2009

Upstream i	Photograph	 	
- Con-		·	

RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	4
Velocity/Depth Regime	(0-20)	7
4. Sediment Deposition	(0-20)	10
5. Channel Flow Status	(0-20)	4
6. Channel Alteration	(0-20)	19
7. Frequency of Riffles (Bends)	(0-20)	16
8a. Bank stability (Lt Bnk)	(0-10)	6
8b. Bank stability (Rt Bnk)	(0-10)	6
9a. Veg. Protection (Lt Bnk)	(0-10)	4
9b. Veg. Protection (Rt Bnk)	(0-10)	5
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	9
	abitat Score:	103



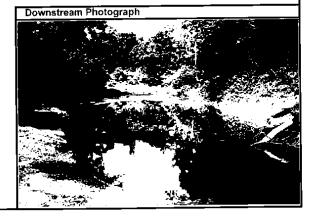
Project Owner: HUC_14: HUC_10:	Cane Run Landfill E-ON/LG&E 05140101320050 051410101320		Mill Cre	ek Cutoff
HUC_14: HUC_10:	05140101320050		Mill Cre	ek Cutoff
HUC_10:				
			Beargra	ss Creek
	05140101		Salt	River
	Mill Creek Cutoff		Width (ft):	60.0
Flow Regime:	Perennial	<u>-</u>	Depth (ft):	5.0
	Manipulated	<u>-</u> ]	Lat:	38.18448
Water is:	Clear	•	Long:	-85.88324
Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a
			рН	n/a
			Cond (umhos)	n/a

v C	Gradient S	tream		
	State:	KY	Station ID:	RBP-2
	County:	Jefferson	Stream ID:	P-1
	City	Louisville	Date:	7/16/2009

Upstream Photograph

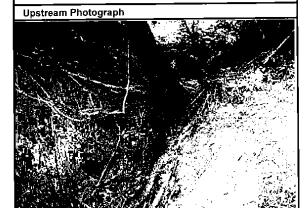


RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	5
2. Embeddedness	(0-20)	6
3. Velocity/Depth Regime	(0-20)	12
4. Sediment Deposition	(0-20)	6
5. Channel Flow Status	(0-20)	13
6. Channel Alteration	(0-20)	15
7. Frequency of Riffles (Bends)	(0-20)	16
8a. Bank stability (Lt Влк)	(0-10)	2
8b. Bank stability (Rt Bnk)	(0-10)	2
9a, Veg. Protection (Lt Bnk)	(0-10)	5
9b. Veg. Protection (Rt Bnk)	(0-10)	5
10a. Riparian Width (Lt Bnk)	(0-10)	9
10b. Riparian Width (Rt Bnk)	(0-10)	7
Total Ha	abitat Score:	103

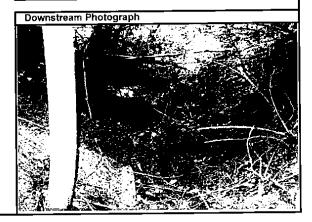


Flow Regime: Ephemeral Des	Mill Creek Cutoff Beargrass Creek Salt River
HUC_10:         051410101320           HUC_8:         05140101           Stream Name:         UT to Mill Creek Cutoff         Wid           Flow Regime:         Ephemeral         Determines	Beargrass Creek Salt River
HUC_8:         05140101         Wid           Stream Name:         UT to Mill Creek Cutoff         Wid           Flow Regime:         Ephemeral         Details	Salt River
Stream Name: UT to Mill Creek Cutoff Win Flow Regime: Ephemeral Des	
Flow Regime: Ephemeral Der	
	th (ft): 3.0
	rtin (ft): 1.0
Channel is: Natural Lat	38.18349
Water is: Absent ▼ Lor	g: <b>-85.8838</b>
Investigators: Jared Edwards, Rita Davis Ter	np (°F) <u>n/a</u>
рН	n/a
Con	d (4mhos). n/a
Comments:	

radient S	tream		
State:	KY	Station ID:	RBP-3
County:	Jefferson	Stream ID:	E-6
City	Louisville	Date:	7/16/2009
_			



Units	Score
(0-20)	2
(0-20)	2
(0-20)	1
(0-20)	10
(0-20)	0
(0-20)	16
(0-20)	0
(0-10)	1
(0-10)	0
(0-10)	1
(0-10)	1
(0-10)	7
(0-10)	9
Total Habitat Score:	
	(0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-10) (0-10) (0-10) (0-10) (0-10)



	Cane Run Landfill		
Project Owner:	E-ON/LG&E		
HUC_14:	05140101320050	Mill	creek Cutoff
HUC_10:	051410101320	Bear	grass Creek
HUC_8:	05140101	1 Salt	
Stream Name:	UT to Mill Creek Cutoff	Width (ft):	2.0
Flow Regime:	Ephemeral	Depth (ft):	1.0
Channel is:	Natural <u>*</u>	Lat:	38.18357
Water is:	Absent	Long:	-85.88376
Investigators:	Jared Edwards, Rita Davis	Temp (°F)	n/a
	1	pH	n/a
		Cond (4mhos	s): n/a

w	w Gradient Stream				
Τ	State:	KY	Station ID:	RBP-4	
1	County:	Jefferson	Stream ID:	E-5	
1	City	Louisville	Date:	7/16/2009	

Upstream Photograph

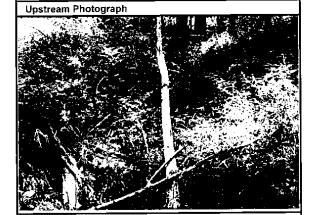


RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	19
3. Velocity/Depth Regime	(0-20)	1
4. Sediment Deposition	(0-20)	18
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	17
7. Frequency of Riffles (Bends)	(0-20)	1
8a. Bank stability (Lt Bnk)	(0-10)	6
8b. Bank stability (Rt Bnk)	(0-10)	7
9a. Veg. Protection (Lt Bnk)	(0-10)	4
9b. Veg. Protection (Rt Bnk)	(0-10)	3
10a. Riparian Width (Lt Bnk)	(0-10)	5
10b. Riparian Width (Rt Впк)	(0-10)	5
Total Ha	bitat Score:	89

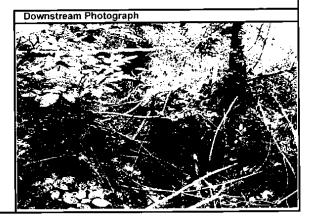


HUC_10: 051410101320	Beargr	eek Cutoff ass Creek
HUC_10: 051410101320 HUC_8: 05140101	Beargr	ass Creek
HUC_8: 05140101		
	Salt	
Stream Name: UT to Mill Creek Cutoff		t River
	Width (ft):	6.0
Flow Regime: Ephemeral •	Depth (ft):	3.0
Channel is: Natural	Lat:	38.18483
Water is: Absent	Long <sup>.</sup>	-85.88163
nvestigators: Jared Edwards, Rita Davis	Temp (°F)	n/a
	рН	n/a
	Cond (4mhos):	n/a_

jľ	radient S	tream		
State:	State:	KY	Station ID:	RBP-5
	County:	Jefferson	Stream ID:	E-24
	City	Louisville	Date:	7/16/2009
				_



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	5
2. Embeddedness	(0-20)	7
3. Velocity/Depth Regime	(0-20)	1
4. Sediment Deposition	(0-20)	10
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	19
7. Frequency of Riffles (Bends)	(0-20)	1
8a. Bank stability (Lt Bnk)	(0-10)	5
8b. Bank stability (Rt Bnk)	(0-10)	5
9a. Veg. Protection (Lt Bnk)	(0-10)	3
9b. Veg. Protection (Rt Bnk)	(0-10)	3
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	79	



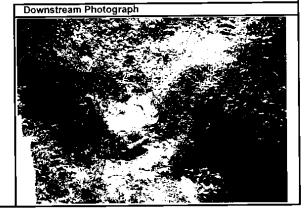
Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         12.0           Flow Regime:         Perennial         ▼         Depth (ft):         5.0           Channel is:         Natural         ▼         Lat:         38.18165           Water is:         Clear         ▼         Long:         -85.87522           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a         Cond (чmhos).         n/a	Project:	Cane Run Landfill			
HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         12.0           Flow Regime:         Perennial         Depth (ft):         5.0           Channel is:         Natural         Lat         38.18165           Water is:         Clear         Long:         -85.87522           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	Project Owner:	E-ON/LG&E			
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         12.0           Flow Regime:         Perennial         Depth (ft):         5.0           Channel is:         Natural         Lat:         38.18165           Water is:         Clear         Long:         -85.87522           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_14:	05140101320050		Mill Cre	ek Cutoff
Stream Name:     UT to Mill Creek Cutoff     Width (ft):     12.0       Flow Regime:     Perennial     ▼ Depth (ft):     5.0       Channel is:     Natural     ▼ Lat:     38.18165       Water is:     Clear     ▼ Long:     -85.87522       Investigators:     Jared Edwards, Rita Davis     Temp (°F)     n/a       pH     n/a	HUC_10:	051410101320		Beargra	ass Creek
Flow Regime:         Perennial         ▼         Depth (ft):         5.0           Channel is:         Natural         ▼         Lat:         38.18165           Water is:         Clear         ▼         Long:         -85.87522           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_8:	05140101		Salt	River
Channel is: Natural Lat: 38.18165  Water is: Clear Long: -85.87522  Investigators: Jared Edwards, Rita Davis PH n/a	Stream Name:	UT to Mill Creek Cutoff		Width (ft):	12.0
Water is: Clear Long: -85.87522 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Flow Regime:	Perennial	~	Depth (ft):	5.0
Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Channel is:	Natural	<b>*</b>	Lat	38.18165
pH n/a	Water is:	Clear	_	Long:	-85.87522
<u> </u>	Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a
Cond (4mhos). n/a		1		pΗ	n/a
				Cond (umhos).	n/a

radient S	tream		
State:	KY	Station 1D:	RBP-6
County:	Jefferson	Stream ID:	P-3
City	Louisville	Date:	7/16/2009



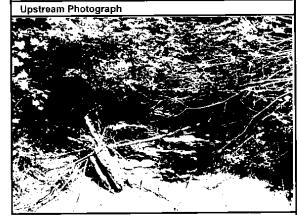


RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	5
2. Embeddedness	(0-20)	8
3. Velocity/Depth Regime	(0-20)	9
4. Sediment Deposition	(0-20)	4
5. Channel Flow Status	(0-20)	2
6. Channel Alteration	(0-20)	16
7. Frequency of Riffles (Bends)	(0-20)	14
8a. Bank stability (Lt Bnk)	(0-10)	3
8b. Bank stability (Rt Bnk)	(0-10)	3
9a. Veg. Protection (Lt Bnk)	(0-10)	4
9b. Veg. Protection (Rt Bnk)	(0-10)	4
10a. Riparian Width (Lt Bnk)	(0-10)	5
10b. Ripariaл Width (Rt Bnk)	(0-10)	6
	bitat Score:	83

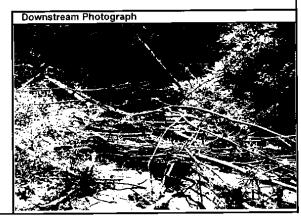


Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         25.0           Flow Regime:         Perennial         □ Depth (ft):         5.0           Channel is:         Natural         □ Lat:         38.18225           Water is:         Clear         □ Long:         -85.87527           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a         Cond (чmhos)         n/a	Project:	Cane Run Landfill		Habitat Ass	
HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         25.0           Flow Regime:         Perennial         □ Depth (ft):         5.0           Channel is:         Natural         □ Lat:         38.18225           Water is:         Clear         □ Long:         -85.87527           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a		E-ON/LG&E		<del>-</del>	
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         25.0           Flow Regime:         Perennial         ▼ Depth (ft):         5.0           Channel is:         Natural         ▼ Lat:         38.18225           Water is:         Clear         ▼ Long:         -85.87527           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	<del> </del>	05140101320050		Mill Cre	ek Cutoff
Stream Name: UT to Mill Creek Cutoff Width (ft): 25.0 Flow Regime: Perennial Depth (ft): 5.0 Channel is: Natural Lat: 38.18225 Water is: Clear Long: -85.87527 Investigators: Jared Edwards, Rita Davis  Temp (°F) n/a pH n/a	HUC_10:	051410101320	_	Beargra	ass Creek
Flow Regime:         Perennial         ▼         Depth (ft):         5.0           Channel is:         Natural         ▼         Lat:         38.18225           Water is:         Clear         ▼         Long:         -85.87527           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_8:	05140101		Salt	River
Channel is: Natural Lat: 38.18225 Water is: Clear Long: -85.87527 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Stream Name:	UT to Mill Creek Cutoff		Width (ft):	25.0
Water is: Clear Long: -85.87527 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Flow Regime:	Perennial	~	Depth (ft):	5.0
Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Channel is:	Natural	Ţj	Lat:	38.18225
pH n/a	Water is:	Clear		Long:	-85.87527
<u> </u>	Investigators:	Jared Edwards, Rita Davis	;	Temp (°F)	n/a
Cond (4mhos) n/a		7		рН	n/a
				Cond (4mhos)	n/a

w	Gradient S	tream		_
Τ	State	KY	Station ID:	R8P-7
1	County:	Jefferson	Stream ID:	P-4
1	City	Louisville	Date:	7/16/2009
1				

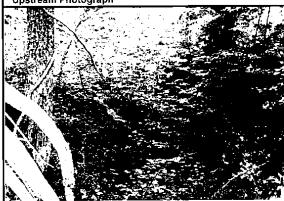


RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	2
2. Embeddedness	(0-20)	4
3. Velocity/Depth Regime	(0-20)	3
4. Sediment Deposition	(0-20)	3
5. Channel Flow Status	(0-20)	2
6. Channel Alteration	(0-20)	1
7. Frequency of Riffles (Bends)	(0-20)	2
8a. Bank stability (Lt Bnk)	(0-10)	5
8b. Bank stability (Rt Bnk)	(0-10)	3
9a. Veg. Protection (Lt Bnk)	(0-10)	4
9b. Veg. Protection (Rt Bnk)	(0-10)	3
10a. Riparian Width (Lt Bnk)	(0-10)	5
10b. Riparian Width (Rt Bnk)	(0-10)	6
Total Ha	abitat Score:	43

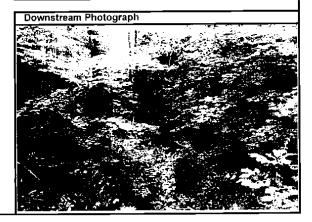


Project:	Cane Run Landfill				State:	KY
Project Owner:	E-ON/LG&E			-	County:	Jeffers
HUC_14:	05140101320050		Mill Cr	eek Cutoff	City	Louisv
HUC_10:	051410101320		Bearg	rass Creek		
HUC_8:	05140101		Sa	It River	Upstre	am Phot
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	12,0	2000 福	
Flow Regime:	Ephemeral		Depth (ft):	3.0		
Channel is:	Natural		Lat:	38.18428		<b>劉</b> ・八
Water is:	Absent	<b>V</b>	Long:	-85.87623		W/
Investigators:	Jared Edwards, Rita Davis	;	Temp (°F)	n/a		1/4
	1		рH	n/a		
			Cond (4mhos)	п/а	] [ "[]	
Comments:						4
	1					
					1,74,00	N. W.
					L. Y	
					\ \ \	
					1 1 No.	W

a.c			
tate:	KY	Station ID:	RBP-8
ounty:	Jefferson	Stream ID:	E-31
ity	Louisville	Date:	7/16/2009
Upstre	am Photograph		



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	4
3. Velocity/Depth Regime	(0-20)	1
4. Sediment Deposition	(0-20)	2
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	16
7. Frequency of Riffles (Bends)	(0-20)	3
8a. Bank stability (Lt Bnk)	(0-10)	1
8b. Bank stability (Rt Bnk)	(0-10)	1
9a, Veg. Protection (Lt Bnk)	(0-10)	1
9b. Veg. Protection (Rt Bnk)	(0-10)	1
10a. Riparian Width (Lt Bnk)	(0-10)	8
10b. Riparian Width (Rt Bnk)	(0-10)	8
Total Ha	bitat Score:	49

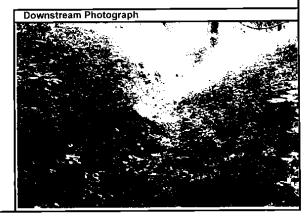


HUC_10:	HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         □ Depth (ft):         2.5           Channel is:         Natural         □ Lat:         38.18238           Water is:         Absent         □ Long:         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	Danie ak Oromani				
HUC_10:	HUC_10:	Project Owner.	E-ON/LG&E			
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         Depth (ft):         2.5           Channel is:         Natural         Lat:         38.18238           Water is:         Absent         Long:         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         □ Depth (ft):         2.5           Channel is:         Natural         □ Lat:         38.18238           Water is:         Absent         □ Long:         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a         Cond (чт/hos)         n/a           Cond (чт/hos):         n/a         Cond (чт/hos)         n/a	HUC_14:	05140101320050		Mill Cre	ek Cutoff
Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         Image: Depth (ft):         2.5           Channel is:         Natural         Lat:         38.18238           Water is:         Absent         Long:         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         Image: Depth (ft):         2.5           Channel is:         Natural         Lat:         38.18238           Water is:         Absent         Long:         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a         Cond (withlos)         n/a	HUC_10:	051410101320		Beargra	ass Creek
Flow Regime:         Ephemeral         Image: Channel is:         Natural         Image: Lat:         38.18238           Water is:         Absent         Image: Long: -85.8797         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	Flow Regime:   Ephemeral   Depth (ft):   2.5	HUC_8:	05140101		Salt	River
Channel is: Natural Table Lat: 38.18238 Water is: Absent Long: -85.8797 Investigators: Jared Edwards, Rita Davis PH n/a	Channel is:         Natural         ▼         Lat:         38.18238           Water is:         Absent         ▼         Long.         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a         Cond (withos)         n/a	Stream Name:	UT to Mill Creek Cutoff	_	Width (ft):	4.0
Water is: Absent Long: -85.8797 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Water is:         Absent         Long:         -85.8797           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a           Cond (чтhos):         n/a	Flow Regime:	Ephemeral •		Depth (ft):	2.5
Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a Cond (4mhos) n/a	Channel is:	Natural	]_	Lat:	38.18238
pH n/a	pH n/a Cond (4mhos): n/a	Water is:	Absent		Long:	-85.87970
	Cond (4mhos): n/a	Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a
Cond (smhos): n/a			1		pH	n/a
	Comments:				Cond (4mhos):	n/a
		- "				

۷ (	Gradient S	tream		
	State:	KY	Station ID:	RBP-9
	County:	Jefferson	Stream ID:	E-38
	City	Louisville	Date:	7/16/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	7
2. Embeddedness	(0-20)	1 _
3. Velocity/Depth Regime	(0-20)	2
Sediment Deposition	(0-20)	11
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	15
7. Frequency of Riffles (Bends)	(0-20)	1
8a. Bank stability (Lt Bnk)	(0-10)	3
8b. Bank stability (Rt Bnk)	(0-10)	3
9a. Veg. Protection (Lt Bnk)	(0-10)	3
9b. Veg. Protection (Rt Bnk)	(0-10)	3
10a. Riparian Width (Lt Bnk)	(0-10)	5
10b. Riparian Width (Rt Bnk)	(0-10)	5
	bitat Score:	59

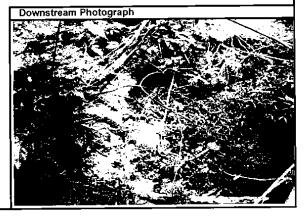


Flow Regime: <b>Ephemeral</b> ▼ Depth (ft): 1. Channel is: <b>Natural</b> ▼ Lat: 38.183	roject:	Cane Run Landfill		
HUC_10: 051410101320 Beargrass Cree HUC_8: 05140101 Salt River Stream Name: UT to Mill Creek Cutoff Width (ft): 6. Flow Regime: Ephemeral Depth (ft): 1. Channel is: Natural Lat: 38.183	roject Owner:	E-ON/LG&E		
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         6           Flow Regime:         Ephemeral         ▼ Depth (ft):         1           Channel is:         Natural         ▼ Lat:         38.183	UC_14:	05140101320050	Mill Cre	ek Cutoff
Stream Name: UT to Mill Creek Cutoff Width (ft): 6. Flow Regime: Ephemeral Depth (ft): 1. Channel is: Natural Lat: 38.183	UC_10:	051410101320	Beargr	ass Creek
Flow Regime: Ephemeral	UC_8:	05140101	Salf	t River
Channel is: Natural V Lat: 38.183	tream Name:	UT to Mill Creek Cutoff	Width (ft):	6.0
Official Control of the Control of t	low Regime:	Ephemeral	Depth (ft):	1.0
Water is: Absent ▼ Long: -85.875	hannel is:	Natural <u>*</u>	Lat:	38.18311
	/ater is:	Absent	Long:	-85.87574
nvestigators: Jared Edwards, Rita Davis Temp (°F) n.	vestigators:	Jared Edwards, Rita Davis	Temp (°F)	n/a
pH n		1	рН	n/a
Cond (4mhos) n			Cond (umhos)	n/a

۶I	adient S	tream		
	State:	KY	Station ID:	RBP-10
	County:	Jefferson	Stream ID:	E-26
	City	Louisville	Date:	7/16/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	2
2. Embeddedness	(0-20)	1
3. Velocity/Depth Regime	(0-20)	2
4. Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	7
7. Frequency of Riffles (Bends)	(0-20)	1
8a. Bank stability (Lt Bnk)	(0-10)	0
8b. Bank stability (Rt Bnk)	(0-10)	0
9a. Veg. Protection (Lt Bnk)	(0-10)	1
9b. Veg. Protection (Rt Bnk)	(0-10)	1
10a. Riparian Width (Lt Bnk)	(0-10)	7
10b. Riparian Width (Rt Bnk)	(0-10)	7
Total Ha	bitat Score:	37

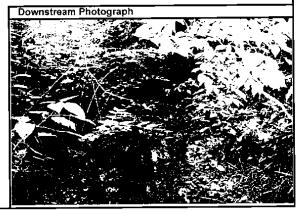


Project:	Cane Run Landfill			
Project Owner:	E-ON/LG&E		<u>-</u>	
HUC_14:	05140101320050		Mill Cre	ek Cutoff
HUC_10:	051410101320		Beargra	ass Creek
HUC_8:	05140101		Salt	River
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	4.0
Flow Regime:	Intermittent, Non-seasonal	•	Depth (ft):	1.5
Channel is:	Natural	<u> </u>	Lat:	38.18204
Water is:	Clear	<u>-</u>	Long:	-85.88448
Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a
	1		pН	n/a
			Cond (4mhos):	n/a
Comments:	· · · · · · · · · · · · · · · · · · ·			

State:	KY	Station ID:	RBP-11
County:	Jefferson	Stream ID:	I-1
Citv	Louisville	Date:	7/17/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	5
2. Embeddedness	(0-20)	12
Velocity/Depth Regime	(0-20)	4
4. Sediment Deposition	(0-20)	9
5. Channel Flow Status	(0-20)	6
6. Channel Alteration	(0-20)	12
7. Frequency of Riffles (Bends)	(0-20)	4
8a. Bank stability (Lt Bnk)	(0-10)	2
8b. Bank stability (Rt Bnk)	(0-10)	2
9a. Veg. Protection (Lt Bnk)	(0-10)	1
9b. Veg. Protection (Rt Bnk)	(0-10)	1
10a. Riparian Width (Lt Bnk)	(0-10)	2
10b. Riparian Width (Rt Bnk)	(0-10)	2
Total Ha	bitat Score:	62

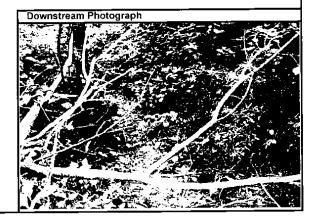


Flow Regime: Intermittent, Non-seasonal Depth (ft): 1.0  Channel is: Natural Lat: 38.18269  Water is: Absent Long: -85.8813  Investigators: Jared Edwards, Rita Davis PH n/a	Project:	Cane Run Landfill		
HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         3.0           Flow Regime:         Intermittent, Non-seasonal ▼         Depth (ft):         1.0           Channel is:         Natural         ▼         Lat:         38.18269           Water is:         Absent         ▼         Long:         -85.8813           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	Project Owner:	E-ON/LG&E		
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         3.0           Flow Regime:         Intermittent, Non-seasonal ▼         Depth (ft):         1.0           Channel is:         Natural         ▼         Lat:         38.18269           Water is:         Absent         ▼         Long:         -85.8813           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_14:	05140101320050	Mill Cre	ek Cutoff
Stream Name:     UT to Mill Creek Cutoff     Width (ft):     3.0       Flow Regime:     Intermittent, Non-seasonal ▼     Depth (ft):     1.0       Channel is:     Natural     ▼     Lat:     38.18269       Water is:     Absent     ▼     Long:     -85.8813       Investigators:     Jared Edwards, Rita Davis     Temp (°F)     n/a       pH     n/a	HUC_10:	051410101320	Beargra	ass Creek
Flow Regime: Intermittent, Non-seasonal ▼ Depth (ft): 1.0  Channel is: Natural ▼ Lat: 38.18269  Water is: Absent ▼ Long: -85.8813  Investigators: Jared Edwards, Rita Davis  Temp (°F) n/a pH n/a	HUC_8:	05140101	Salt	River
Channel is: Natural Valence: Absent Long: -85.8813 Investigators: Jared Edwards, Rita Davis PH n/a	Stream Name:	UT to Mill Creek Cutoff	Width (ft):	3.0
Water is: Absent	Flow Regime:	Intermittent, Non-seasonal 🔻	Depth (ft):	1.0
Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Channel is:	Natural -	Lat:	38.18269
pH n/a	Water is:	Absent	Long:	-85.88134
<del>                                   </del>	Investigators:	Jared Edwards, Rita Davis	Temp (°F)	n/a
Condition to the state of the s			рН	n/a
Cond (4minos).   11/a			Cond (4mhos):	n/a

٧	v Gr	adient S	tream		
		State:	KY	Station ID:	RBP-12
		County:	Jefferson	Stream ID:	I-2
		City	Louisville	Date:	7/17/2009
_		-	<u> </u>		

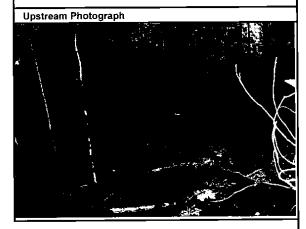


RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	2
2. Embeddedness	(0-20)	5
<ol><li>Velocity/Depth Regime</li></ol>	(0-20)	3
4. Sediment Deposition	(0-20)	9
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	14
7. Frequency of Riffles (Bends)	(0-20)	2
8a. Bank stability (Lt Bnk)	(0-10)	2
8b. Bank stability (Rt Bnk)	(0-10)	2
9a. Veg. Protection (Lt Bnk)	(0-10)	2
9b. Veg. Protection (Rt Bnk)	(0-10)	1
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	bitat Score:	62

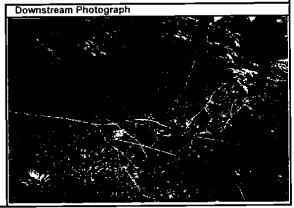


Project Owner:         E-ON/LG&E           HUC_14:         05140101320050           HUC_10:         051410101320           HUC_8:         05140101           Stream Name:         UT to Garrison Ditch           Flow Regime:         Ephemeral			eek Cutoff ass Creek
HUC_10: 051410101320 HUC_8: 05140101 Stream Name: UT to Garrison Ditch		Beargr	ass Creek
HUC_8: 05140101 Stream Name: UT to Garrison Ditch		<del></del>	_
Stream Name: UT to Garrison Ditch		Sal	l Dive-
			f Kivet
Flow Regime: Ephemeral		Width (ft):	8.0
	7	Depth (ft):	1,0
Channel is: Natural	<u>.</u>	Lat:	38.18159
Water is: Absent	<u> </u>	Long:	-85.88054
Investigators: Jared Edwards, Rita Da	vis	Temp (°F)	n/a
		рН	n/a
		Cond (umhos)	n/a
Comments:			

٨	Gradient S	tream		
I	State:	KY	Station ID:	RBP-13
1	County:	Jefferson	Stream ID:	E-10
1	City	Louisville	Date:	7/17/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	4
2. Embeddedness	(0-20)	6
3. Velocity/Depth Regime	(0-20)	1
4. Sediment Deposition	(0-20)	6
5. Channel Flow Status	(0-20)	2
6. Channel Alteration	(0-20)	5
7. Frequency of Riffles (Bends)	(0-20)	0
8a. Bank stability (Lt Bnk)	(0-10)	7
8b. Bank stability (Rt Bnk)	(0-10)	5
9a. Veg. Protection (Lt Bnk)	(0-10)	3
9b. Veg. Protection (Rt Bnk)	(0-10)	3
10a. Riparian Width (Lt Bnk)	(0-10)	6
10b. Riparian Width (Rt Bnk)	(0-10)	2
Total Ha	bitat Score:	50

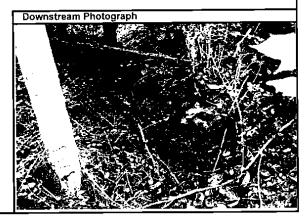


		KDI	Habitat Ass	essinein -
Project:	Cane Run Landfill			
Project Owner:	E-ON/LG&E			
HUC_14:	05140101320050		Mill Cre	ek Cutoff
HUC_10:	051410101320		Beargr	ass C <u>reek</u>
HUC_8:	05140101		Sal	t River
Stream Name:	UT to Garrison Ditch		Width (ft):	5.0
Flow Regime:	Ephemeral	<b>.</b>	Depth (ft):	2.0
Channel is:	Manipulated		Lat:	38.18081
Water is:	Absent	•	Long:	-85.88002
Investigators:	Jared Edwards, Rita Davis	_	Temp (°F)	n/a
	7		pН	n/a
			Cond (4mhos):	n/a_
Comments:				

Gradient	Stream		
State:	KY	Station ID:	RBP-15
County:	Jefferson	Stream ID:	E-9
City	Louisville	Date:	7/17/2009



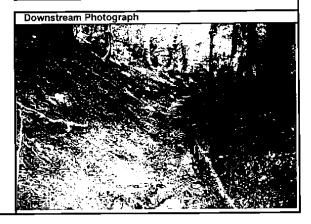
RBP Habitat Parameters	Unit <u>s</u>	Score
Epifaunal Substrate	(0-20)	4
2. Embeddedness	(0-20)	7
Velocity/Depth Regime	(0-20)	2
4. Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	6
7. Frequency of Riffles (Bends)	(0-20)	1
8a. Bank stability (Lt Bnk)	(0-10)	2
8b. Bank stability (Rt Bnk)	(0-10)	2
9a. Veg. Protection (Lt Bnk)	(0-10)	2
9b. Veg. Protection (Rt Bnk)	(0-10)	4
10a. Riparian Width (Lt Bnk)	(0-10)	2
10b. Riparian Width (Rt Bnk)	(0-10)	2
Total Ha	bitat Score:	42



Project:         Cane Run Landfill           Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         Garrison Ditch         Width (ft):         12.0           Flow Regime:         Perennial         □ Depth (ft):         4.0           Channel is:         Manipulated         □ Lat:         38.18016           Water is:         Absent         □ Long:         -85.87911           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a         Cond (чт/hos):         n/a	Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cut           HUC_10:         051410101320         Beargrass Cre           HUC_8:         05140101         Salt River           Stream Name:         Garrison Ditch         Width (ft):         1           Flow Regime:         Perennial         ▼ Depth (ft):         4           Channel is:         Manipulated         ▼ Lat:         38.180           Water is:         Absent         ▼ Long:         -85.87           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         1
HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         Garrison Ditch         Width (ft):         12.0           Flow Regime:         Perennial         ▼ Depth (ft):         4.0           Channel is:         Manipulated         ▼ Lat:         38.18016           Water is:         Absent         ▼ Long:         -85.87911           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_14:         05140101320050         Mill Creek Cut           HUC_10:         051410101320         Beargrass Cre           HUC_8:         05140101         Salt River           Stream Name:         Garrison Ditch         Width (ft):         1           Flow Regime:         Perennial         □ Depth (ft):         4           Channel is:         Manipulated         □ Lat:         38.180           Water is:         Absent         □ Long:         -85.87           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         1           pH         □         Cond (чтhos):         1
HUC_10: 051410101320 Beargrass Creek  HUC_8: 05140101 Salt River  Stream Name: Garrison Ditch Width (ft): 12.0  Flow Regime: Perennial □ Depth (ft): 4.0  Channel is: Manipulated □ Lat: 38.18016  Water is: Absent □ Long: -85.87911  Investigators: Jared Edwards, Rita Davis □ Temp (°F) n/a  pH n/a	HUC_10: 051410101320 Beargrass Cre HUC_8: 05140101 Salt River  Stream Name: Garrison Ditch Width (ft): 1 Flow Regime: Perennial Depth (ft): 4 Channel is: Manipulated ▼ Lat: 38.18€ Water is: Absent ▼ Long: -85.87 Investigators: Jared Edwards, Rita Davis  Temp (°F) pH Cond (чтhos): Investigators: Investiga
HUC_8:         05140101         Salt River           Stream Name:         Garrison Ditch         Width (ft):         12.0           Flow Regime:         Perennial         ▼ Depth (ft):         4.0           Channel is:         Manipulated         ▼ Lat:         38.18016           Water is:         Absent         ▼ Long:         -85.87911           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	HUC_8:         05140101         Salt River           Stream Name:         Garrison Ditch         Width (ft):         1           Flow Regime:         Perennial         ▼ Depth (ft):         4           Channel is:         Manipulated         ▼ Lat:         38.180           Water is:         Absent         ▼ Long:         -85.87           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         1           pH         1         Cond (чтhos):         1
Stream Name: Garrison Ditch Width (ft): 12.0 Flow Regime: Perennial Depth (ft): 4.0 Channel is: Manipulated Lat: 38.18016 Water is: Absent Long: -85.87911 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Stream Name: Garrison Ditch Width (ft): 1 Flow Regime: Perennial Depth (ft): 2 Channel is: Manipulated Lat: 38.186 Water is: Absent Long: -85.87 Investigators: Jared Edwards, Rita Davis PH Cond (4mhos): 1
Flow Regime:         Perennial         ▼         Depth (ft):         4.0           Channel is:         Manipulated         ▼         Lat:         38.18016           Water is:         Absent         ▼         Long:         -85.87911           Investigators:         Jared Edwards, Rita Davis         Temp (°F)         n/a           pH         n/a	Flow Regime:   Perennial   ▼   Depth (ft):   4
Channel is: Manipulated Lat: 38.18016 Water is: Absent Long: -85.87911 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Channel is: Manipulated
Water is: Absent Long: -85.87911 Investigators: Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Water is: Absent ▼ Long: -85.87 Investigators: Jared Edwards, Rita Davis
Investigators. Jared Edwards, Rita Davis Temp (°F) n/a pH n/a	Investigators: Jared Edwards, Rita Davis Temp (°F) pH I Cond (9mhos):
pH n/a	pH I Cond (4mhos):
F-1	Cond (4mhos):
Cond (4mhos): n/a	
	Comments:

٧ ١	Gradient S	tream		_
	State:	KY	Station ID:	RBP-16
	County:	Jefferson	Stream ID:	P-2
l	City	Louisville	Date:	7/17/2009
4	_			

Units	Score
(0-20)	3
(0-20)	2
(0-20)	4
(0-20)	6
(0-20)	5
(0-20)	6
(0-20)	3
(0-10)	1
(0-10)	1
(0-10)	0
(0-10)	0
(0-10)	3
(0-10)	5
ibitat Score:	39
	(0-20) (0-20) (0-20) (0-20) (0-20) (0-20) (0-10) (0-10) (0-10) (0-10) (0-10) (0-10)

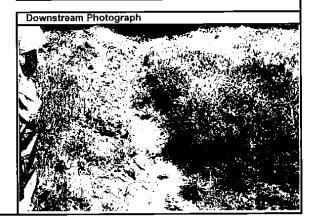


Project:	Cane Run Landfill			
Project Owner:	E-ON/LG&E			
HUC_14:	05140101320050		Mill Cr	eek Cutoff
HUC_10:	051410101320	_	Beargr	ass Creek
HUC_8:	05140101		Sal	t River
Stream Name:	UT to Garrison Ditch		Width (ft):	2.0
Flow Regime:	Ephemeral	-	Depth (ft):	1.5
Channel is:	Manipulated	<u>_</u> -	Lat:	38.17788
Water is:	Absent	<u>•</u> ]	Long:	-85.87782
Investigators:	Jared Edwards, Rita Da	vis	Temp (°F)	n/a
.,			рН	n/a
			Cond (4mhos)	n/a
Comments:				

State:	KY	Station ID:	RBP-17
County:	Jefferson	Stream ID:	E-15
City	Louisville	Date:	7/17/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	1
2. Embeddedness	(0-20)	5
3. Velocity/Depth Regime	(0-20)	1
4. Sediment Deposition	(0-20)	2
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	6
7. Frequency of Riffles (Bends)	(0-20)	1
8a. Bank stability (Lt Bnk)	(0-10)	0
8b. Bank stability (Rt Bnk)	(0-10)	0
9a. Veg. Protection (Lt Bnk)	(0-10)	0
9b. Veg. Protection (Rt Bnk)	(0-10)	1
10a. Riparian Width (Lt Bnk)	(0-10)	2
10b. Riparian Width (Rt Bnk)	(0-10)	1
Total Ha	bitat Score:	20



Project:	Cane Run Landfill				State:	KY
Project Owner:	E-ON/LG&E		_		County:	Jeffers
HUC_14:	05140101320050		Mill Cre	ek Cutoff	City	Louisv
HUC_10:	051410101320		Beargr	ass Creek		
HUC_8:	05140101		Salt	River	Upstre	am Phot
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	7.0	ي جمري	*
Flow Regime:	Ephemeral	•	Depth (ft):	3.0		-
Channel is:	Natural	_	Lat:	38.180 <u>96</u>		*
Water is:	Clear		Long:	-85.87851		- T
Investigators:	Jared Edwards, Brian Fox		Temp (°F)	n/a		
	1		pН	n/a		Billian,
			Cond (4mhos)	n/a		
Comments:						
	7				-	
						973
	1					
					5.1	473

City	Louisville	Date:	7/28/2009
Upst	ream Photograph		
÷	*		
		The state of the s	
<b>P</b>		10 m	Name of the

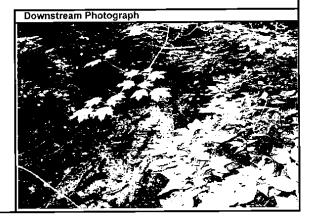
Stream ID:

Jefferson

RBP-18

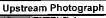
E-16

RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	8
2. Embeddedness	(0-20)	3
Velocity/Depth Regime	(0-20)	10
4. Sediment Deposition	(0-20)	3
5. Channel Flow Status	(0-20)	8
6. Channel Alteration	(0-20)	20
7. Frequency of Riffles (Bends)	(0-20)	8
8a. Bank stability (Lt Bnk)	(0-10)	3
8b. Bank stability (Rt Bnk)	(0-10)	3
9a. Veg. Protection (Lt Bnk)	(0-10)	8
9b. Veg. Protection (Rt Bnk)	(0-10)	8
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	bitat Score:	102



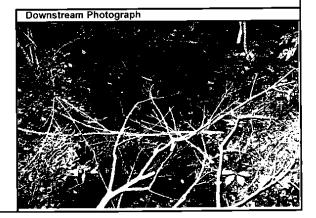
	Cane Run Landfill			
Project Owner:	E-ON/LG&E			_
HUC_14:	05140101320050		Mill Cre	ek Cutoff
HUC_10:	051410101320		Beargr	ass Creek
HUC_8:	05140101		Salt	River
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	3.0
Flow Regime:	Ephemeral	<b>T</b>	Depth (ft):	1.0
Channel is:	Natural		Lat:	38.18086
Water is:	Absent	<u>•</u>	Long:	-85.87830
Investigators:	Jared Edwards, Brian Fox		Temp (°F)	n/a
			pH	n/a
			Cond (4mhos):	n/a
Comments:				

	_				
۷	v Gı	radient S	tream		
		State:	KY	Station ID:	RBP-19
_		County:	Jefferson	Stream ID:	E-18
		City	Louisville	Date:	7/28/2009





RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
<ol><li>Embeddedness</li></ol>	(0-20)	3
3. Velocity/Depth Regime	(0-20)	3
4. Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	20
7. Frequency of Riffles (Bends)	(0-20)	13
8a. Bank stability (Lt Bnk)	(0-10)	6
8b. Bank stability (Rt Bnk)	(0-10)	6
9a. Veg. Protection (Lt Bnk)	(0-10)	6
9b. Veg. Protection (Rt Bnk)	(0-10)	6
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	abitat Score:	94



1 tojak o milati	Project:	Cane Run Landfill			sessment - Lo	State:	KY
HUC_10: 051410101320 Beargrass Creek  HUC_8: 05140101 Salt River  Stream Name: UT to Mill Creek Cutoff Width (ft): 7.0  Flow Regime: Ephemeral □ Depth (ft): 1.0  Channel is: Natural □ Lat: 38.18022  Water is: Clear □ Long: -85.87817  Investigators: Jared Edwards, Brian Fox □ Temp (°F) n/a  pH n/a	Project Owner:	E-ON/LG&E				County:	Jeffers
HUC_8: 05140101 Salt River  Stream Name: UT to Mill Creek Cutoff Width (ft): 7.0  Flow Regime: Ephemeral Depth (ft): 1.0  Channel is: Natural Lat: 38.18022  Water is: Clear Long: -85.87817  Investigators: Jared Edwards, Brian Fox PH n/a  pH n/a	HUC_14:	05140101320050		Mill Cr	eek Cutoff	City	Louisv
Stream Name: UT to Mill Creek Cutoff Width (ft): 7.0  Flow Regime: Ephemeral Depth (ft): 1.0  Channel is: Natural Lat: 38.18022  Water is: Clear Long: -85.87817  Investigators: Jared Edwards, Brian Fox PH n/a  pH n/a	HUC_10:	051410101320		Bearg	rass Creek		
Flow Regime:         Ephemeral         V         Depth (ft):         1.0           Channel is:         Natural         V         Lat:         38.18022           Water is:         Clear         V         Long:         -85.87817           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a	HUC_8:	05140101		Sa	It River	Upstre	eam Pho
Channel is: Natural ✓ Lat: 38.18022  Water is: Clear ✓ Long: -85.87817  Investigators: Jared Edwards, Brian Fox PH n/a  PH n/a	Stream Name:	UT to Mill Creek Cutoff		Width (ft):	7.0		1
Water is: Clear Long: -85.87817 Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	Flow Regime:	Ephemeral	▼]	Depth (ft):	1.0		7
Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	Channel is:	Natural	-[	Lat:	38.18022		经国
pH n/a	Water is:	Clear	•	Long:	-85.87817		
	Investigators	Jared Edwards, Brian Fox		Temp (°F)	n/a	26 SE	
Cond (4mhos). n/a	~			pН	n/a	100	
		<u> </u>		Cond (4mhos).	n/a		- 314
						7	والمبلك
						724	<b>**</b>
						- 4	
							in a

City	Louisville	Date:	7/31/2009
Upsti	ream Photograph		
7.5	1/4-X	Se 16.5	一大学。从
	To 12 20	4	124
4			
6. 1			
20			3.77
1	training the same of the same		1

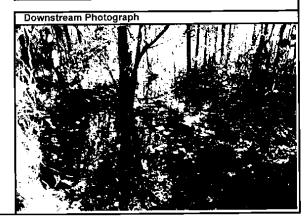
Stream ID:

Jefferson

RBP-20

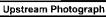
E-16

20) <b>3</b>
·20) <b>3</b>
·20) <b>8</b>
20) 13
·20) <b>18</b>
20) 13
·20) <b>3</b>
·10) <b>9</b>
·10) <b>9</b>
-10) <b>10</b>
·10) <b>10</b>
-10) <b>9</b>
-10) 9
core: 117



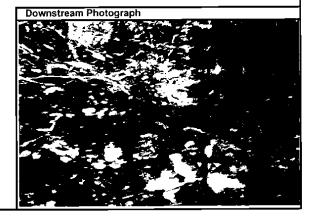
Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         □ Depth (ft):         0.5           Channel is:         Natural         □ Lat:         38.18089           Water is:         Clear         □ Long:         -85.87939           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           PH         n/a         Cond (чтhos):         n/a	HUC_14:			-	
HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         □ Depth (ft):         0.5           Channel is:         Natural         □ Lat:         38.18089           Water is:         Clear         □ Long:         -85.87939           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a					
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         4.0           Flow Regime:         Ephemeral         ✓ Depth (ft):         0.5           Channel is:         Natural         Lat:         38.18089           Water is:         Clear         ✓ Long:         -85.87939           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a	11110 40	05140101320050		Mill Cre	ek Cutoff
Stream Name: UT to Mill Creek Cutoff Width (ft): 4.0  Flow Regime: Ephemeral Depth (ft): 0.5  Channel is: Natural Lat: 38.18089  Water is: Clear Long: -85.87939  Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	HUC_10:	051410101320		Beargra	ss Creek
Flow Regime:   Ephemeral	HUC_8:	05140101		Salt	River
Channel is: Natural Lat: 38.18089 Water is: Clear Long: -85.87939 Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	Stream Name:	UT to Mill Creek Cutoff		Width (ft):	4.0
Water is: Clear Long: -85.87939 Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	Flow Regime:	Ephemeral	▼	Depth (ft):	0.5
Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	Channel is:	Natural	<b>-</b>	Lat:	38.18089
pH n/a	Water is:	Clear	•	Long:	-85.87939
	Investigators:	Jared Edwards, Brian Fox		Temp (°F)	n/a
Cond (ymhos): n/a				pH	n/a
				Cond (4mhos):	n/a

w	Gradient S	tream		
Ţ	State:	KY	Station ID:	RBP-21
1	County:	Jefferson	Stream ID:	E-12
1	City	Louisville	Date:	7/31/2009





RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	3
3. Velocity/Depth Regime	(0-20)	3
4. Sediment Deposition	(0-20)	3
5. Channel Flow Status	(0-20)	13
6. Channel Alteration	(0-20)	8
7. Frequency of Riffles (Bends)	(0-20)	8
8a. Bank stability (Lt Bnk)	(0-10)	8
8b. Bank stability (Rt Bnk)	(0-10)	8
9a. Veg. Protection (Lt Bnk)	(0-10)	8
9b. Veg. Protection (Rt Bnk)	(0-10)	8
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	bitat Score:	93



Project:	Cane Run Landfill				State:	KY
Project Owner:	E-ON/LG&E				County:	Jeffers
HUC_14:	05140101320050		Mill Cre	ek Cutoff	City	Louisv
HUC_10:	051410101320		Beargra	ass Creek		
HUC_8:	05140101		Salt	River	Upstre	am Pho
Stream Name:	UT to Milt Creek Cutoff		Width (ft):	6.0	<b>3</b>	
Flow Regime:	Ephemeral	*	Depth (ft):	3.0	1.5	400
Channel is:	Natural	<u>~</u> ]	Lat:	38.18106		
Water is:	Clear		Long:	-85.87971		* .
Investigators:	Jared Edwards, Brian Fox		Temp (°F)	n/a	<b>* 34</b>	* **
			рН	n/a		
			Cond (4mhos):	n/a	To the second	144
Comments:					A 25	1.
					<b>1</b>	
						199
						VI.31

Upstream	Photograph				
			ومعود والمتحودة المتأثرة	1	
					K
	12				7 Y
	1			.W.	
	- NI -				Ü
1		MAN P			
1			C/2 3		

Stream ID:

Date:

RBP-22

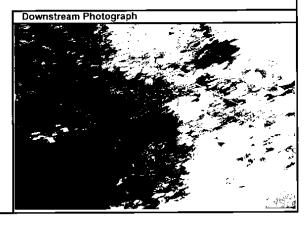
E-11

7/31/2009

Jefferson

Louisville

RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	13
2. Embeddedness	(0-20)	13
Velocity/Depth Regime	(0-20)	13
4. Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	3
6. Channel Alteration	(0-20)	18
7. Frequency of Riffles (Bends)	(0-20)	13
8a. Bank stability (Lt Bnk)	(0-10)	1
8b. Bank stability (Rt Bnk)	(0-10)	1
9a. Veg. Protection (Lt Bnk)	(0-10)	4
9b. Veg. Protection (Rt Bnk)	(0-10)	4
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	bitat Score:	111



Project:         Cane Run Landfill           Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         □ Depth (ft):         1.0           Channel is:         Natural         □ Lat:         38.18102           Water is:         Clear         □ Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox pH         Temp (°F) n/a pH         n/a Cond (wmhos)	Project Owner:         E-ON/LG&E           HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Saft River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         ▼ Depth (ft):         1.0           Channel is:         Natural         ▼ Lat:         38.18102           Water is:         Clear         ▼ Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a			RBF	P Habitat Ass	essme <u>nt - L</u>
HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         □ Depth (ft):         1.0           Channel is:         Natural         □ Lat:         38.18102           Water is:         Clear         □ Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a	HUC_14:         05140101320050         Mill Creek Cutoff           HUC_10:         051410101320         Beargrass Creek           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         □ Depth (ft):         1.0           Channel is:         Natural         □ Lat:         38.18102           Water is:         Clear         □ Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox pH         Temp (°F) n/a pH         n/a Cond (чmhos)	Project:	Cane Run Landfill			
HUC_10: 051410101320 Beargrass Creek  HUC_8: 05140101 Salt River  Stream Name: UT to Mill Creek Cutoff Width (ft): 2.0  Flow Regime: Ephemeral Depth (ft): 1.0  Channel is: Natural Lat: 38.18102  Water is: Clear Long: -85.87954  Investigators: Jared Edwards, Brian Fox pH n/a	HUC_10:	Project Owner:	E-ON/LG&E			
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         Depth (ft):         1.0           Channel is:         Natural         Lat:         38.18102           Water is:         Clear         Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a	HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         □ Depth (ft):         1.0           Channel is:         Natural         □ Lat:         38.18102           Water is:         Clear         □ Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox pH         Temp (°F) n/a pH         n/a           Cond (чтhos)         n/a	HUC_14:	05140101320050		Mill Cre	ek Cutoff
Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         Depth (ft):         1.0           Channel is:         Natural         Lat:         38.18102           Water is:         Clear         Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a	Stream Name:         UT to Mill Creek Cutoff         Width (ft):         2.0           Flow Regime:         Ephemeral         □ Depth (ft):         1.0           Channel is:         Natural         □ Lat:         38.18102           Water is:         Clear         □ Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox pH         Temp (°F) n/a pH         n/a cond (чт/ноs)	HUC_10:	051410101320		Beargr	ass Creek
Flow Regime:         Ephemeral         Depth (ft):         1.0           Channel is:         Natural         Lat:         38.18102           Water is:         Clear         Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a	Flow Regime:         Ephemeral         ▼         Depth (ft):         1.0           Channel is:         Natural         ▼         Lat:         38.18102           Water is:         Clear         ▼         Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox pH         Temp (°F) n/a pH         n/a cond (чт/нов)           PH         n/a cond (чт/нов)         n/a	HUC_8:	05140101		Saft	River
Channel is: Natural Lat: 38.18102 Water is: Clear Long: -85.87954 Investigators: Jared Edwards, Brian Fox PH n/a	Channel is: Natural Lat: 38.18102 Water is: Clear Long: -85.87954 Investigators: Jared Edwards, Brian Fox PH n/a Cond (4mhos) n/a	Stream Name:	UT to Mill Creek Cutoff		Width (ft):	2.0
Water is: Clear Long: -85.87954 Investigators: Jared Edwards, Brian Fox PH n/a	Water is:         Clear         Long:         -85.87954           Investigators:         Jared Edwards, Brian Fox         Temp (°F)         n/a           pH         n/a           Cond (чт/ноs)         n/a	Flow Regime:	Ephemeral	•	Depth (ft):	1.0
Investigators: Jared Edwards, Brian Fox Temp (°F) n/a pH n/a	Investigators:   Jared Edwards, Brian Fox   Temp (°F)   n/a     pH   n/a	Channel is:	Natural	•	Lat:	38.18102
pH n/a	pH         n/a           Cond (4mhos)         n/a	Water is:	Clear	_	Long:	-85.87954
The state of the s	Cand (4mhos) n/a	Investigators:	Jared Edwards, Brian Fox	_	Temp (°F)	n/a
Cond (4mhos) n/a					pH	n/a
	Comments:	_			Cond (4mhos)	n/a
			1			
			1			

radient	Stream		
State:	KY	Station ID:	RBP-23
County	Jefferson	Stream ID:	E-13
City	Louisville	Date:	7/31/2009

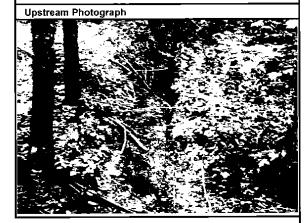


RBP Habitat Parameters	Un <u>its</u>	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	3
Velocity/Depth Regime	(0-20)	3
Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	13
6. Channel Alteration	(0-20)	18
7. Frequency of Riffles (Bends)	(0-20)	13
8a. Bank stability (Lt Bnk)	(0-10)	8
8b. Bank stability (Rt Bnk)	(0-10)	8
9a. Veg. Protection (Lt Bnk)	(0-10)	7
9b. Veg. Protection (Rt Bnk)	(0-10)	7
10a, Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	10
Total Ha	bitat Score:	111

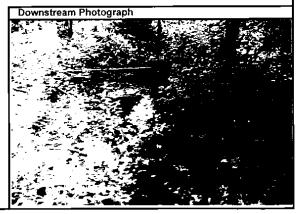


Project:	Cane Run Landfill	1101	Habitat Ass	COOTHETT.
•	<del>-</del>		_	<u>-</u>
Project Owner:	E-ON/LG&E		T	
HUC_14:	05140101320050		Mill Cre	ek Cutoff
HUC_10:	051410101320		Beargr	ass Creek
HUC_8:	05140101		Salf	River
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	4.0
Flow Regime:	Ephemeral	<u> </u>	Depth (ft):	1.0
Channel is:	Natural	•]	Lat:	38.17945
Water is:	Clear	<b>.</b>	Long:	-85.87768
Investigators:	Jared Edwards, Brian Fox		Temp (°F)	n/a
	1		pΗ	n/a
_			Cond (umhos)	n/a
Comments:				

	v Gr	adient St	ream		
1		State:	KY	Station ID:	RBP-24
ı		County:	Jefferson	Stream ID:	E-16
1		City	Louisville	Date:	7/31/2009
1					



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	8
<ol><li>Embeddedness</li></ol>	(0-20)	13
3. Velocity/Depth Regime	(0-20)	3
Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	18
6. Channel Alteration	(0-20)	8
7, Frequency of Riffles (Bends)	(0-20)	13
8a. Bank stability (Lt Bnk)	(0-10)	8
8b. Bank stability (Rt Bnk)	(0-10)	8
9a. Veg. Protection (Lt Bnk)	(0-10)	8
9b. Veg. Protection (Rt Bnk)	(0-10)	8
10a. Riparian Width (Lt Bnk)	(0-10)	10
10b. Riparian Width (Rt Bnk)	(0-10)	5
Total Ha	bitat Score:	118



	Cane Run Landfill				State:	KY
Project Owner:	E-ON/LG&E			<del>-</del>	County:	Jeffers
HUC_14:	05140101320050		Mill Cre	ek Cutoff	City	Louisv
HUC_10:	051410101320		Beargr	ass Creek	1	
HUC_8:	05140101		Salt	River	Upstre	am Phot
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	10.0	]	
Flow Regime: .	Ephemeral	•	Depth (ft):	3.0	]	
Channel is:	Artificial	•	Lat:	38.18021	] [	
Water is:	Absent	<u>*</u>	Long:	-85.88430		Nu.
Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a		
			рH	n/a		· 2160, 54
			Cond (4rnhos)	n/a		
Comments:						
						Ž., 3

Upstre	am Photo	graph		1
				in the second
	-			

Stream ID:

Date:

Jefferson

Louisville

RBP-25

E-1a

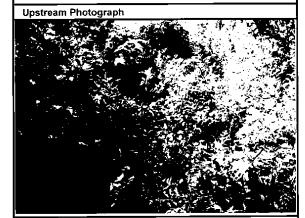
8/13/2009

RBP Habitat Parameters	Unîts	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	3
3. Velocity/Depth Regime	(0-20)	3
4. Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	2
6. Channel Alteration	(0-20)	3
7. Frequency of Riffles (Bends)	(0-20)	3
8a. Bank stability (Lt Bnk)	(0-10)	8
8b. Bank stability (Rt Bnk)	(0-10)	8
9a. Veg. Protection (Lt Bnk)	(0-10)	9
9b. Veg. Protection (Rt Bnk)	(0-10)	9
10a. Riparian Width (Lt Bnk)	(0-10)	1
10b. Riparian Width (Rt Bnk)	(0-10)	2
Total Ha	hitat Score:	62

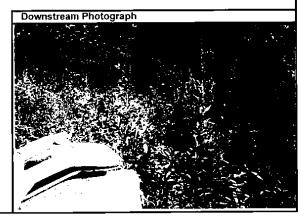


Flow Regime:         Ephemeral         ▼         Depth (ft):           Channel is:         Artificial         ▼         Lat:         38.18           Water is:         Absent         ▼         Long:         -85.8	Project:	Cane Run Landfill			
HUC_10:         051410101320         Beargrass Cr           HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):           Flow Regime:         Ephemeral         Depth (ft):           Channel is:         Artificial         Lat:         38.18           Water is:         Absent         Long:         -85.8	Project Owner:	E-ON/LG&E			
HUC_8:         05140101         Salt River           Stream Name:         UT to Mill Creek Cutoff         Width (ft):           Flow Regime:         Ephemeral         Depth (ft):           Channel is:         Artificial         Lat:         38.18           Water is:         Absent         Long:         -85.8	HUC_14:	05140101320050		Mill Cre	eek Cutoff
Stream Name:         UT to Mill Creek Cutoff         Width (ft):           Flow Regime:         Ephemeral         * Depth (ft):           Channel is:         Artificial         Lat:         38.18           Water is:         Absent         Long:         -85.8	HUC_10:	051410101320		Beargr	ass Creek
Flow Regime:         Ephemeral         ▼         Depth (ft):           Channel is:         Artificial         ▼         Lat:         38.18           Water is:         Absent         ▼         Long:         -85.8	HUC_8:	05140101		Sal	t River
Channel is:         Artificial         ▼         Lat:         38.18           Water is:         Absent         ▼         Long:         -85.8	Stream Name:	UT to Mill Creek Cutoff		Width (ft):	10.0
Water is: Absent	Flow Regime:	Ephemeral	*	Depth (ft):	3.0
	Channel is:	Artificial	•	Lat:	38.18194
Investigators   Jared Edwards Pita Davis   Temp (°F)	Water is:	Absent	<b>_</b>	Long:	-85,88408
investigators.   Jaied Edwards, Rita Davis   Temp (1/ _]	Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a
pH_		7		pH	n/a
Cond (4mhos)				Cond (umhos)	n/a

اد	adient 2	tream		
	State:	KY	Station ID:	RBP-26
	County:	Jefferson	Stream ID:	E-3
	City	Louisville	Date:	8/13/2009
				•



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	3
<ol><li>Velocity/Depth Regime</li></ol>	(0-20)	3
Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	2
6. Channel Alteration	(0-20)	3
7. Frequency of Riffles (Bends)	(0-20)	3
8a. Bank stability (Lt Bnk)	(0-10)	8
8b. Bank stability (Rt Bnk)	(0-10)	8
9a, Veg. Protection (Lt Bnk)	(0-10)	9
9b. Veg. Protection (Rt Bnk)	(0-10)	9
10a. Riparian Width (Lt Bnk)	(0-10)	1
10b. Riparian Width (Rt 8nk)	(0-10)	2
Total Ha	abitat Score:	62

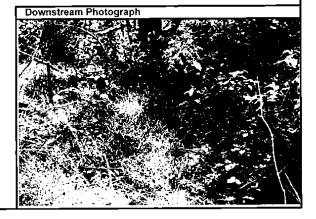


		BF	Habitat Ass	essment -		
Project:	Cane Run Landfill					
Project Owner:	E-ON/LG&E					
HUC_14:	05140101320050		Mill Creek Cutoff			
HUC_10:	051410101320		Beargra	Beargrass Creek		
HUC_8:	05140101		Salt	River		
Stream Name:	UT to Mill Creek Cutoff		Width (ft):	4.0		
Flow Regime:	Ephemeral	•]	Depth (ft):	1.0		
Channel is:	Manipulated	-]_	Lat:	38.18320		
Water is:	Absent	<b>.</b>	Long:	-85.87966		
Investigators:	Jared Edwards, Rita Davis		Temp (°F)	n/a		
	7		pН	n/a		
			Cond (umhos)	n/a		
Comments:						

v G	Fradient S	tream		
	State:	KY	Station ID:	RBP-27
	County:	Jefferson	Stream ID:	E-38
	City	Louisville	Date:	8/13/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	3
2. Embeddedness	(0-20)	3
3. Velocity/Depth Regime	(0-20)	2
4. Sediment Deposition	(0-20)	5
5. Channel Flow Status	(0-20)	0
6. Channel Alteration	(0-20)	7
7. Frequency of Riffles (Bends)	(0-20)	3
8a. Bank stability (Lt Bnk)	(0-10)	6
8b. Bank stability (Rt Bnk)	(0-10)	6
9a. Veg. Protection (Lt Bnk)	(0-10)	5
9b. Veg. Protection (Rt Bnk)	(0-10)	5
10a. Riparian Width (Lt Bnk)	(0-10)	8
10b. Riparian Width (Rt Bnk)	(0-10)	8
Total Ha	bitat Score:	61



HUC_8:         05140101         Salt Rive           Stream Name:         UT to Mill Creek Cutoff         Width (ft):           Flow Regime:         Ephemeral         ▼ Depth (ft):           Channel is:         Natural         ▼ Lat:         38.1				Run Landfill	Project:
HUC_10:         051410101320         Beargrass C           HUC_8:         05140101         Salt Rive           Stream Name:         UT to Mill Creek Cutoff         Width (ft):           Flow Regime:         Ephemeral         ▼ Depth (ft):           Channel is:         Natural         ▼ Lat:         38.1				/LG&E	Project Owner:
HUC_8: 05140101 Salt Rive  Stream Name: UT to Mill Creek Cutoff Width (ft):  Flow Regime: Ephemeral Depth (ft):  Channel is: Natural Lat: 38.1	k Cutoff	Mill Cre		0101320050	HUC_14:
Stream Name: UT to Mill Creek Cutoff Width (ft): Flow Regime: Ephemeral Depth (ft): Channel is: Natural Lat: 38.1	Beargrass Creek			10101320	HUC_10:
Flow Regime: Ephemeral Depth (ft):  Channel is: Natural Lat: 38.1	Salt River			D101	HUC_8:
Channel is: Natural ✓ Lat: 38.1	4.0	Width (ft):		Mill Creek Cutoff	Stream Name:
Original II.	1.0	Depth (ft):	•	meral	Flow Regime:
	38.18529	Lat:	<u> </u>	al	Channel is:
Water is: Absent <u>▼</u> Long: -85.	-85.8768 <u>5</u>	Long:	•	nt	Water is:
Investigators: Jared Edwards, Rita Davis Temp (°F)	n/a	Temp (°F)		l Edwards, Rita Davis	Investigators:
pΗ	n/a	pΗ			
Cond (4mhos)	n/a	Cond (4mhos)			
Comments:					Comments:

State:	KY	Station ID:	RBP-28
County:	Jefferson	Stream ID:	E-34
City	Louisville	Date:	8/13/2009



RBP Habitat Parameters	Units	Score
Epifaunal Substrate	(0-20)	2
<ol><li>Embeddedness</li></ol>	(0-20)	3
3. Velocity/Depth Regime	(0-20)	2
4. Sediment Deposition	(0-20)	8
5. Channel Flow Status	(0-20)	Ö
6. Channel Alteration	(0-20)	5
7, Frequency of Riffles (Bends)	(0-20)	3
8a. Bank stability (Lt Bnk)	(0-10)	5
8b. Bank stability (Rt Bnk)	(0-10)	5
9a. Veg. Protection (Lt Bnk)	(0-10)	4
9b. Veg. Protection (Rt Bnk)	(0-10)	4
10a. Riparian Width (Lt Bnk)	(0-10)	4
10b. Riparian Width (Rt Bnk)	(0-10)	4
Total Ha	bitat Score:	49



**Wetland Delineation Data Sheets** 

				ROU	TINE WETLA				A FORM		
		4 44B1 IL				Wetlands	Delineation M	ianual}_			
		AMPLING STAT	ION INI								
	WAS-1	1 marifili Arona			sect ID: munity ID:	<del></del> -					:
		Landfill Area Landfill Project	_		. 7/21/09		2				
	E-ON/LG8				ity: Jefferson			-		المتعاددة والمتعاددة والمتعاددة	10 m
Investigator			_		. Kentucky			-,,	A STATE OF THE PERSON NAMED IN		
myestigator	unant ex	WETLAND D	FTERM		*		*		وماري والمحادث		- 35468
Do Mormal Ci	reumstann	es exist on the s		T	YES						
		isturbed (Atypica		, <sub>012</sub>	NO -			W.,			7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	-	robiem Area?	ii Oilonii	"" <sup>,</sup>	ON					<b>200 Harris</b>	
Hydrophytic \	·				NO T			4			The second
	-			ŀ	NO						
Wetland Hydr Hydric Soils F	•	SEIHT		ŀ	NO						
Hydric Solis F	resent							$J_{ij}$		A Contraction	
ls this Samp	ling Point	Within a Wetlar	nd?	Ţ	NO		1			beaty.	1
Remarks:							W. To				1
						VEGET	ATION		<u> </u>	NAME OF THE PERSON OF THE PERS	220,100
<u></u>	Dominac:	Plant Species		Stratum	Indicator	VEGE		inant F	Plant Species	Stratum	Indicator
	alleghenie			SHRUB	FACU-	9	Prenanthes a			HER8	FACU-
	cus canad			HERB	FACW-	10					
	norus pho			HERB	FACU	11					
4 Vitis sp				VINE		12.					
	а јаропіса			VINE	FAC-	13					
6 Şorghu	m haleper	ise		HERB	FACU	14				ľ	
7 Toxicos	dendron ra	dicans		HERB	FAC	15				1	
8 Ambros	sia artemis	iifolia		HERB	FACU	16.					
Percent of Do	ominant Sp	necies that are O	BL, FAC	Wor FAC	C (excluding FA)	<u>ا (-دی</u>	25%				_ <del>-</del>
									Hydrop	hytic Vegetation	Present? NO
					····	HYDRO	DLOGY				
Primary Indi	cators				ators (2 or mo				Fleid Observations:		
Inunda	ted	_		xidized R	loot Channels in	Upper 12	in		Depth of Surface Water	N/O	
Satura	ted in Uppi	er 12 Inches	[ <u> </u>	Vater-Stai	ned Leaves				Depth to Water in Pit:	N/O	
Water	Marks				Survey Data				Depth to Saturated Soil	N/O	
Drift Li	nes		$\overline{}$	AC-Neutr					Recorded Data (Describe in		
Sedime	ent Deposi	ts		ither (exp	lam in Remarks;	)			Stream, Lake or Tide Gauge.		
Draina	ge Pattern	s in Wetlands	XN	lone					Aerial Photographs:	N/A	
X None									Other:	N/A	_
Remarks:											
1									Wetland Hyden	ogy Present or In	dicated? NO
<b></b>							ILS		Yvenema riyara	9) 1 103011 01 11	
A4= 11:11:		Manalina >				30	12.3		Drainage Class Well Dra	uned	
Map Unit N		Wheeling Loam ny, mixed, active,	mesis !	Iltic Hack	idalfs				Field Observations Confirm M		
Depth (In.)						lor (Abund	iance/Contra	st)	Texture, Structure		etc.
D-8"	12,12411		R4/4			t		_ <del>-</del> -		Loam	
8-16"			R4/6						Sin	Loam	
										_	
Hydric Soll		<u></u>	1 5-	Tanaka da sa sa sa	Candilla				Organic Streaking in Sandy S	oile	
I	Histosol				Conditions			<u> </u>			
I	Histic Epi			-	Low-Chroma Co	SIDLE		-	Listed on Local / National Hyd	and adirs LIST	
1 <u> </u>	Suffidic C			concretion				<del>-</del>	Other (Explain in Remarks)		
1	JAquic Mo	isture Regime	<u> </u>	tigh Orga	nic Content In S	urface of S	andy Solis	X	None		
Remarks:											
1										Hydric Soils	Present? NO

		<u>-</u>				TERMINATION		A FORM		
					COE Wetland	ds Defineation M	anuai)			
		AMPLING STA				}				
	WAS-2	-12111 5		Transect ID:		وقعه حيدتان أحوالان	<b>7</b> 44-7	Market Company		
		andfill Area Landfill Project		Community ID: Date: 7/21/09	PEMIA	-	echi.		7	And the second
	E-ON/LG&			County Jeffers	on	7.				
Investigator:				State: Kentucky		Track to the state of		1		
in tooking skorr		WETLAND D				4.045	4			
Do Normal C	ircumstanc	es exist on the s		YES		Section Services	on Herr			
		sturbed (Atypic		NO	1		**	Control of the Contro	AND THE RESERVE OF THE PARTY OF	
Is the area a			- +,	NO	1					79
Hydrophytic \	<u> </u>			YES	i -		1	Bratilla vice below	排出了公路。	
Wetland Hyd	_			YES	1	<b>大学</b> 第 2	1.0	<b>建筑等的人的</b>		
Hydric Soils f				YEŞ	1					<b>3</b>
9	4 -	Within a Wetla	nd?	YES	]		11 5			
Remarks;				<u> </u>				一种的		
						**		K. T. W. V.		
	. :				VEC	ETATION				
	Dominant	Plant Species	Strat	um Indicat			inant F	lant Species	Stratum	Indicator
	s arundina		HEF	_		9 Juncus tenuis		<u></u>	HERB	FAC-
	cus canade		HEF		I	0				ļ
	oryzaides		HEF	B OBL	1	1				
	ans oblusa		HE	RB OBL	1	2				
5 Liquida	ımbar strya	ciffua	SAPL		I	3			ļ	
6. Juncus			HER			4				l .
	s atrovirens		HEF			5				
B. Carex	vulpinoidea	ecies that are C	HEF	RB OBL		89%				
					, D. F.	501.001		Hydre	ophylic Vegetation	Present? YES
	- 1	21 121				ROLOGY		S. H. Ohannakiana		
Primary Ind				Indicators (2 o				Field Observations: Depth of Surface Water	N/O	
Inunda				ed Roat Chann		2 in		Depth to Water in Pit	N/O	
		r 12 Inches		Stained Leave				Depth to Saturated Soil:	N/O	
Water Drift Li				Soil Survey Dai Veutral Test	la			Recorded Data (Describe)		<u> </u>
	ries ent Deposit			(explain in Ren	narke'i			Stream, Lake, or Tide Gaug		
		s in Wetlands	None	•	iarks/			Aerial Photographs	N/A	
None	ge rawein:	III AAGIIGIIGS						Other	N/A	
Remarks:			.1			_			\ <u></u>	
					<del></del>	SOU &		Welland Hydi	rology Present or I	neicated / YES
Mantinita	omo '	Mainhach Citt	220		, 3	SOILS		Drainage Class. Some	what Poorly Drain	-d
Map Unit N		Weinbach Sill Lu mixed, active, n		e disconerate	_			Field Observations Confirm	what Poorly Draine Mapped Type?	
Depth (in.)		Matrix Color (			le Color (Abu	ndance/Contras	sti		ure, Concretions	, etc.
0-16"	MONZON		(R5/2	317 11011		any/distinct)			Sitty Clay	
					,	•				
Hydric Soll	Indicators	:						4.		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Histosol		Redu	cing Conditions				Organic Streaking in Sandy	Soits	
	Histic Epr	pedan		d or Low-Chron				Listed on Local / National H		
	Sulfidic O			etions				Other (Explain in Remarks)		
		sture Regime		Organic Conten	t in Surface of	Sandy Solts		None		
Remarks:			<u> </u>	_						
Į.								_		
i								1	Hydric Soils	Present? YES

					ROL		AND DETERMINATION  Wetlands Delineation f				
			SAMPLING STA	ATION IN	IFORMAT		i				Ř
□lot l	D:	WAS-3		•••••		sect ID:	, , , , , , , , , , , , , , , , , , ,			_ i	
Loca			Landfill Area			munity ID:	<b>~</b>	. 4	and the second s		
Proje Owni		Cane Rui E-ON/LG	n Landfill Project			: 7/21/09 nty Jefferson					
			. Rite Davis			s: Kentucky			ger i general de la compansión de la compa	7	T-1
			WETLAND	DETERA	<del></del>		7.	1			610
Do N	ormal C	ırcumslan	ces exist on the s	site?		YES	N. N	17.3	Marie Control of the Control	100	LINE CO
is the	site sig	nificantly i	disturbed (Atypic	al Situat	tion)7	NO	1/2 🕵	. 1	Constant was a second		
			Problem Area?			NO		13		(1)	
•			Present?			YES		V/E			7,720.2
		rology Pre Present?	esent?			YES		5 V-1	100		
is thi	ls Samp	ling Poin	t Within a Wetla	ind?		YES					
Rem	arks:						( A ( )				1
			<u> </u>								
		Dominan	t Plant Species		Stratum	Indicator	VEGETATION	ninant	Plant Species	Stratum	Indicator
1		s arundina		$\dashv$	HERB	FACW+	9.		opvoreo	3	
		icus canad			HERB	FACW-	10				
		onorus phi			HERB	FACU	11				
		aris obtus	â		HERB	OBL	12.				
		a spicata		]	HERB HERB	FACW+ FACW+	13. 14.				
	6. Juncus effusus HERB HERB HERB				OBL	15.					
á.	Guren				TILITE	0.00	16.				
						<u>.</u>	HYDROLOGY		Hydroph	yıic Vegetation	Present? YES
Ozim	ary Indi	ratore		Secon	dany India	ators (2 or mo			Field Observations:		
CIM	Inunda					ool Channels in			Depth of Surface Water	N/O	
×	4		er 12 Inches			ned Leaves	<b> </b>		Depth to Water in Pit:	N/O	
-	Waler					Survey Data			Depth to Saturated Soil.	N/Q	
	Drift La	nes			FAC-Neutr	al Test			Recorded Data (Describe in R	temarks)?	
	-	ent Depos		-		lain in Remarks	1		Stream, Lake, or Tide Gauge	NJA	
		ge Patterr	is in Wetlands	<u> </u>	None				Aerial Photographs	N/A	
Rem	None arks:			1 1					Other:	N/A	
									Welland Hydrolo	ny Dragont or fr	dicateral VE
			· · · · · · · · · · · · · · · · · · ·				SOILS		yvenana myorolo	y rieselli of II	Modieur (E)
	unit N		Weinbach Silt Lo							it Poorly Draine	d
		Fine-silty Horizon	, mixed, active, n Matrix Color (				for (Abundance/Contra	et)	Field Observations Confirm Ma Texture, Structure		ptc .
	<u>⊪12"</u> -12"	, TOTAL OF		(Murisei ∕R4/2	. moisy		'R4/6 (small/distinct)			Clay	
	2-15"			/R4/2			/R4/4 (large/distinct)			Clay	
Hydi	ric Soil	l Indicators	S:			<u> </u>					
		Histosal		-		Conditions			Organic Streaking in Sandy Soi		
		Histic Ep			•	Low-Chroma Co	plors		Listed on Local / National Hydri	c Soits List	
		Sulfidic C			Concretion		4		Other (Explain in Remarks)		
<b>D</b> -		[Aquic Mo	esture Regime		High Orgai	nic Content in S	urface of Sandy Soils		None		
Kem	arks:										
										Hydric Soils	Present?] YE

			ROL		ND DETERMI Wettands Delin					
		SAMPLING STA	TION INFORMAT		- vvettarios exejir	PE.	idati			
Plot ID.	WAS-4		and the second s	sect ID:	المرجان أ					
Location:	Proposed	Landfill Area	Соп	munity ID:						
		Landfill Project		7/21/09		بخيفان				
Owner:	E-ON/LG			nty: Jefferson				:		
investigator.	Brian Fox			e: Kentucky			Section 1	and some		
			ETERMINATION					Section 1	- 44	400
		es exist on the s		YES NO	1	- 3			1 2 20	76
		Isturbed (Atypic	ai Situation) r	NO	3.5				wash Ali	3.1
Hydrophytic		Problem Area?		NO			date.			<b>经</b>
Wetland Hyd				NO					<b>海</b> 基础	3.00 m
Hydric Soils		sent:		NO					12.50	3
rivanc sons	ricoenti			1,10	- F	V.	10 Table 10	1		
ls this Samp	ling Poin	t Within a Wetla	nd?	NO		$\mathcal{N}_{\mathcal{K}}$			1	A
Remarks:						17.7	A 100		100	2
							16/14/2		16 A	
		<del></del>			VIEGE LVIO		No Your	1 SE	<u>د و ب</u>	(S)
· .	Dominas	Plant Species	Stratum	Indicator	VEGETATIO		ant Plant Specie	38	Stratum	Indicator
1 School	Dominani Domorus pho		HERB	FACU	<del> </del> 9	Domin	ant Light Sheet		DUBIUM	1110.04(01
2 Setaria		roi in	HERB	UPL	19.					
_	га јаропіса	i	VINE	FAC-	11.					
4 Sorght	ım halepei	rse	HERB	FACU	12					
5					13					
Ĝ					14.					
7					15 16					
Damani of O	Amiaan C	necine that are C	BL. FACW or FAC	L C Javeludigo EAI					<u>.</u>	l
(Remarks:								Hydrophy	tic Vegetation	Present? NO
				·	HYDROLOG	Ϋ́				
Primary Ind	cators		Secondary India	cators (2 or mo	re required)			ervations:		
Inunda				Root Channels in	i Upper 12 in		L '	irlace Water	N/O	
		er 12 Inches		ned Leaves			Depth to W		N/O	
Water				Survey Data				aturated Soil	N/O	
Drift Li			FAC-Neutr					Data (Describe in Ri	emarks)? N/A	
	ent Depos			lain in Remarks	J		Aerial Phot	ke, or Tide Gauge.	N/A	
X None	ge Pattern	s in Wellands	X None				Other	ograpiis.	N/A	
Remarks:		_	1 1			_	Other		1860	
								Wetland Hydrolog	y Present or I	ndicated? NO
				151 1	SOILS					:
Map Unit N		Weinbach Silt Lo					Drainage C		Poorly Draine	:d
Taxonomy:			nesic Aeric Fragia					rvations Confirm Map		
Depth (in.)	Horizon		Munsell Moist)		lor (Abundance			Texture, Structure,		etc.
0-8" 8-16"			(R4/3 (R4/4	'	0YR4/4 (few/fam	it)		Sitt Le Sitt Le		
Hydric Soil			1 "	l	_		<u> </u>			
	Histosol			Conditions		,		reaking in Sandy Sori		
	Histic Ep	•		Low-Chroma Co	olors	],	<del></del> +	ocat / National Hydrk	Solls List	
	Suifidic C		Concretion			0.1.		lain in Remarks)		
D	JAquic Mo	usture Regime	High Orga	nic Content in S	urface of Sandy	\$0IIS	X None			
Remarks:										
									Hydric Soils	Present? NO

	TION WEST		. vyenano	is Delineation Man	uaij		
SAMPLING STA	TION INFOR		·				
lot ID WAS-5		Transect ID:				* * *	41 \$
ocation: Proposed Landfill Area roject/Site: Cane Run Landfill Project		Community ID: Date: 7/21/09	_	1. 6		es is	ه داند کار د
roject/Site: Cane Run Landfill Project wher: E-ON/LG&E		County Jefferso		- 1 · · · · · · · · · · · · · · · · · ·	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
ivestigator Brian Fox, Rita Davis		State: Kentucky	<u></u>	14 . ne 5.	10.00 A A A A A A A A A A A A A A A A A A	7	
WETLAND D	DETERMINA				The second secon	AND THE SAME OF TH	
o Normal Circumstances exist on the	· -	YES	<u></u>		11.601111001111001111001111001111001111001111		56 <b>7</b> 4.767
the site significantly disturbed (Atypic							
the area a potential Problem Area?		NO		A STATE OF THE STA			
lydrophytic Vegetation Present?		YES		<b>地方的原始</b>	<b>经验证的</b>	<b>计小学和学生主义</b>	100
Vetland Hydrology Present?		YÉS		<b>基本的</b>	<b>建筑的大学和大学</b>	<b>以</b> 資訊 以 2.11	
ydric Soils Present?		YES				<b>《次》例外</b>	200
s this Sampling Point Within # Wetla	and?	YES					A. C.
temarks:		>	<del></del>				
					统制制度		
	<del></del>	<del></del>	VEG	TATION	K NAME OF THE PARTY OF THE PART		
Dominant Plant Species	Stra	ium Indicato			ant Plant Species	Stratum	Indicat
1 Mentha spicata		RB FACW+		9	inni al-ana		
2 Junçus effusus		RB FACW+					
3 Juncus tenuis	HE	RB FAC-	11	1			
4 Scirpus atrovirens	HE	RS OBL	1:				
5			13	-			
6			14				
7		1					1
8			16				
8 ercent of Dominant Species that are C	DBL, FACW	ar FAC (excluding	16				
8 ercent of Dominant Species that are C	OBL, FACW	ar FAC (excluding	16   FAC-)	6	:	Hydrophytic Vegetation	Present?
8 ercent of Dominant Species that are C emarks:		or FAC (excluding	10 FAC-)	6 75% ROLOGY	Fleid Observations:		Present?
8 ercent of Dominant Species that are C emarks:	Secondary		FAC-) HYDI	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate	r N/O	Present?
8 ercent of Dominant Species that are Cemarks: rimary Indicators	Secondary X Oxid	y Indicators (2 or	HYDF more requirels in Upper 1	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate Depth to Water in Pit	r N/O N/O	Present
8 ercent of Dominant Species that are Cemarks: rimary Indicators	Secondary X Oxid Wate Loca	y Indicators (2 or fized Root Channe er-Stained Leaves al Soil Survey Data	HYDF more requir	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wata Depth to Water in Pit Depth to Saturated Soi	I NIO	Present?
ercent of Dominant Species that are Clemarks:  rimary Indicators  Inundated  Water Marks  Drift Lines	Secondary X Oxid Wate Loca FAC	y Indicators (2 or fized Root Channe er-Stained Leaves al Soil Survey Data -Neutral Test	HYDF more requir	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wata Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc	r N/O N/O I N/O ribe in Remarks)?	Present?
ercent of Dominant Species that are Clemarks:  Primary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits	Secondary X Oxid Wate Loca FAC Othe	y Indicators (2 or fized Root Channe er-Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema	HYDF more requir	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (	r N/O N/O I N/O ribe in Remarks)? Gauge: N/A	Present?
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated  Water Marks  Drift Lines	Secondary X Oxid Wate Loca FAC	y Indicators (2 or fized Root Channe er-Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema	HYDF more requir	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide & Aerial Photographs.	r N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A	Present?
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands None	Secondary X Oxid Wate Loca FAC Othe	y Indicators (2 or fized Root Channe er-Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema	HYDF more requir	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (	r N/O N/O I N/O ribe in Remarks)? Gauge: N/A	Present?
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands None	Secondary X Oxid Wate Loca FAC Othe	y Indicators (2 or fized Root Channe er-Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema	HYDF more requir	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide & Aerial Photographs.	r N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A	Present?
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands None	Secondary X Oxid Wate Loca FAC Othe	y Indicators (2 or fized Root Channe er-Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema	HYDF more requir els in Upper 1	6 75% ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide a Aerial Photographs, Other	r N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A	
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Orift Lines Sediment Deposits Drainage Patterns in Wetlands None Itemarks:	Secondary X Oxid Wate Loca FAC Othe None	y Indicators (2 or fized Root Channe er-Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema	HYDF more requir els in Upper 1	6 75% ROLOGY ed)	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide 4 Aerial Photographs, Other	r N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A	ndicated?
ercent of Dominant Species that are Cemarks:  rimary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None (emarks:	Secondary X Oxid Wate Loca FAC Othe None	y Indicators (2 or lized Root Channe er Stained Leaves al Soif Survey Data -Neutral Test er (explain in Rema e	HYDF more requir els in Upper 1	6 75% ROLOGY ed) 2 in	Fleid Observations.  Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide & Aerial Photographs, Other  Wetland	r N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or I	ndicated?
ercent of Dominant Species that are Clemarks:  rimary Indicators  Inundated  X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands None Remarks:  Map Unit Name: Weinbach Sill L Taxonomy Fine-silty, mixed, active in	Secondary X Oxid Wate Loca FAC Othe None	y Indicators (2 or lized Root Channe er Stained Leaves al Soil Survey Data -Neutral Test er (explain in Rema e	HYDF more requir els in Upper 1 arks)	6 75% ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (A Aerial Photographs, Other  Wetland  Drainage Class S Field Observations Cor	r N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or I	ndicated?
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Itemarks:  Map Unit Name: Weinbach Sill L Taxonomy Fine-silty, mixed, active is Depth (In.) [Horizon] Matrix Color	Secondary X Oxid Wate Loca FAC Othe None	y Indicators (2 or lized Root Channe er Stained Leaves al Soil Survey Data -Neutral Test er (explain in Rema e	HYDF more requir els in Upper 1 arks)	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (A Aerial Photographs, Other  Wetland  Drainage Class S Field Observations Cor	r N/O N/O N/O N/O N/O N/O Remarks)? Gauge: N/A N/A N/A N/A N/A Hydrology Present or I	ndicated?
ercent of Dominant Species that are Cemarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Itemarks:  Map Unit Name: Weinbach Sill L Taxonomy Fine-silty, mixed, active is Depth (In.) [Horizon] Matrix Color	Secondary X Oxid Wate Loca FAC Othe None	y Indicators (2 or lized Root Channe er Stained Leaves al Soil Survey Data -Neutral Test er (explain in Rema e	HYDF more requir els in Upper 1 arks)	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (A Aerial Photographs, Other  Wetland  Drainage Class S Field Observations Cor	r N/O N/O N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or I	ndicated?
emarks:  rimary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Itemarks:  Map Unit Name: Weinbach Sill L Taxonomy Fine-sillty, mixed, active in Depth (In.) Horizon Matrix Color D-16" 10"	Secondary X Oxid Wate Loca FAC Othe None	y Indicators (2 or lized Root Channe er Stained Leaves al Soil Survey Data -Neutral Test er (explain in Rema e	HYDF more requir els in Upper 1 arks)	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (A Aerial Photographs, Other  Wetland  Drainage Class S Field Observations Cor	r N/O N/O N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or I	ndicated?
ercent of Dominant Species that are Clemarks:  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Weinbach Sit L Taxonomy Fine-sitty mixed, active is Depth (In.) Horizon Matrix Color D-16" 10"	Secondary X Oxid Wate Loca FAC Othe None Mane Mane Mane Mane Mane Mane Mane Ma	y Indicators (2 or lized Root Channe er Stained Leaves al Soil Survey Data-Neutral Test er (explain in Rema e	HYDF more requir els in Upper 1 arks)	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide a Aerial Photographs, Other  Wetland  Drainage Class S Field Observations Coi Texture, S	r N/O N/O N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or I somewhat Poorty Drains tructure, Concretions Silty Clay	ndicated?
ercent of Dominant Species that are Clemarks:  Primary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Weinbach Silt L Taxonomy Fine-silty, mixed, active is Depth (In.) Horizon Matrix Color 0-16" 10"	Secondary X Oxid Wate Loca FAC Othe None (Munsell Mo YR5/2	y Indicators (2 or lized Root Channe er Stained Leaves at Soil Survey Data-Neutral Test er (explain in Remain e Praguagualis Mottle lucing Conditions	HYDI more requir els in Upper 1 arks)  Color (Abur 10YR4/6 (ma	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide (A Aerial Photographs, Other  Wetland  Drainage Class S Field Observations Cor	r N/O N/O N/O N/O I N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A N/A Hydrology Present or I comewnat Poorly Draine nfirm Mapped Type? tructure, Concretions Silty Clay	ndicated?
ercent of Dominant Species that are Clemarks:  rimary Indicators  Inundated  X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Weinbach Sill L Taxonomy Fine-silty, mixed, active is Depth (In.) Horizon Matrix Color D-16" 10"	Secondary X Oxid Wate Loca FAC Othe None Manager (Munsell Mo	y Indicators (2 or lized Root Channe er Stained Leaves at Soif Survey Oats - Neutral Test er (explain in Roma e  Fraguagualfs of St. Mottle	HYDI more requir els in Upper 1 arks)  Color (Abur 10YR4/6 (ma	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide of Aerial Photographs. Other  Wetland  Drainage Class S Field Observations Coi Texture, S  Organic Streaking in S Listed on Local / Natio	r N/O N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or 1 iomewhat Poorly Drain offirm Mapped Type? tructure, Concretions Silty Clay andy Sods nal Hydric Solls List	ndicated?
Primary Indicators Inundated  X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Weinbach Sitt L Taxonomy Fine-silty, mixed, active is Depth (In.) Horizon Matrix Color D-16" 10"	Secondary X Oxid Wate Loca FAC Othe None Mesic Aeric I (Munseil Mc YR5/2 Red X Gley Con-	y Indicators (2 or fized Root Channe er-Stained Leaves at Soil Survey Data-Neutral Test er (explain in Remaie Fragraqualis orist) Mottle	HYDF more requir lis in Upper 1  arks)  Color (Abur 10YR4/6 (ma	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide ( Aerial Photographs, Other  Wetland  Drainage Class Field Observations Cor Texture, S  Organic Streaking in S Listed on Local / Natio Other (Explain in Rem.	r N/O N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or 1 iomewhat Poorly Drain offirm Mapped Type? tructure, Concretions Silty Clay andy Sods nal Hydric Solls List	ndicated?
ercent of Dominant Species that are Clemarks:    Inundated   Inund	Secondary X Oxid Wate Loca FAC Othe None Mesic Aeric I (Munseil Mc YR5/2 Red X Gley Con-	y Indicators (2 or lized Root Channe er Stained Leaves at Soif Survey Oats - Neutral Test er (explain in Roma e  Fraguagualfs of St. Mottle	HYDF more requir lis in Upper 1  arks)  Color (Abur 10YR4/6 (ma	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide of Aerial Photographs. Other  Wetland  Drainage Class S Field Observations Coi Texture, S  Organic Streaking in S Listed on Local / Natio	r N/O N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or 1 iomewhat Poorly Drain offirm Mapped Type? tructure, Concretions Silty Clay andy Sods nal Hydric Solls List	ndicated?
emarks:  rimary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Map Unit Name: Weinbach Sill L Taxonomy Fine-silty, mixed, active is Depth (In.) Horizon Matrix Color D-16" 10"  ydric Soil Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime	Secondary X Oxid Wate Loca FAC Othe None Mesic Aeric I (Munseil Mc YR5/2 Red X Gley Con-	y Indicators (2 or fized Root Channe er-Stained Leaves at Soil Survey Data-Neutral Test er (explain in Remaie Fragraqualis orist) Mottle	HYDF more requir lis in Upper 1  arks)  Color (Abur 10YR4/6 (ma	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide ( Aerial Photographs, Other  Wetland  Drainage Class Field Observations Cor Texture, S  Organic Streaking in S Listed on Local / Natio Other (Explain in Rem.	r N/O N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or 1 iomewhat Poorly Drain offirm Mapped Type? tructure, Concretions Silty Clay andy Sods nal Hydric Solls List	ndicated?
rimary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None temarks:  Map Unit Name: Weinbach Sitt L Taxonomy Fine-sitty, mixed, active is Depth (In.) Horizon Matrix Color D-16" 10'  lydric Soil Indicators: Histosol Histic Epipedon Sulfidic Odor	Secondary X Oxid Wate Loca FAC Othe None Mesic Aeric I (Munseil Mc YR5/2 Red X Gley Con-	y Indicators (2 or fized Root Channe er-Stained Leaves at Soil Survey Data-Neutral Test er (explain in Remaie Fragraqualis orist) Mottle	HYDF more requir lis in Upper 1  arks)  Color (Abur 10YR4/6 (ma	6 75%  ROLOGY ed) 2 in	Fleid Observations: Depth of Surface Wate Depth to Water in Pit Depth to Saturated Soi Recorded Data (Desc Stream, Lake, or Tide ( Aerial Photographs, Other  Wetland  Drainage Class Field Observations Cor Texture, S  Organic Streaking in S Listed on Local / Natio Other (Explain in Rem.	r N/O N/O N/O N/O N/O ribe in Remarks)? Gauge: N/A N/A N/A N/A Hydrology Present or 1 iomewhat Poorly Drain offirm Mapped Type? tructure, Concretions Silty Clay andy Sods nal Hydric Solls List	ndicated?

	ROL			RMINATION D		
	TION INFORMAT		E Wetlands i	Delineation Menu	(al)	
	TION INFORMAT					
Plot ID. WAS-6		sect ID:				
Location Proposed Landfill Area		munity ID:			the Control of the Co	
Project/Site. Cane Run Landfill Project Owner: E-ON/LG&E		:: 7/21/09 hty: Jefferson				
Owner: E-ON/LG&E Investigator: Brian Fox, Rite Davis		e Kentucky	,	The sale of the sale of		
INVESTIGATION CHAIT FOX, RILE DEVIS	ETERMINATION	e itelitativ	<del></del> 1,	10.7		1
Do Normal Circumstances exist on the		YES	<del></del>	Green Control		Les .
		NO				, i
is the site significantly disturbed (Atypic	at Shuation)?	NO	Į.			
Is the area a potential Problem Area?		NO		74 X 11 1	· · · · · · · · · · · · · · · · · · ·	r Pi
Hydrophytic Vegetation Present?		NO	E			
Welland Hydrology Present?			l;			-28
Hydric Soils Present?		NO	——————————————————————————————————————		(1975年) (1975年) (1975年)	
is this Sampling Point Within a Wetla	ind?	NO	Î			
Remarks:			L			
			VEGETA		2 Company	104
Dominant Plant Species	Stratum	Indicator			nt Plant Species Stratum Indica e HERB FACI	
1 Vitus sp.	VINE HERB	FACU		Trifolium pratense Solidago altissimi		
2 Schedonorus phoenix	VINE	FAC-	11	sondayo anissimi	a HERO FACI	D-
3. Lonicere japonice	HERB	FACU	12			
4. Sorghum halepense	HERB	FACU	13			
5. Dactyks glomerata 6. Ambrosia artemisiifoka	HERB	FACU	14			
7. Prenanthes altissima	HERB	FACU:	15			
8 Campsis radicans	HERB	FAC	16			
Percent of Dominant Species that are 0	ORL FACWOLFAL			11%		_
Primary Indicators		tool Channels in		)	Hydrophytic Vegetation Present?  Field Observations:  Depth of Surface Water N/O	NO
Saturated in Upper 12 Inches		ned Leaves			Depth to Water in Pff N/O	
Water Marks		Survey Data			Depth to Saturated Soit: N/O	
Drift Lines	FAC-Neutr	al Test			Recorded Data (Describe in Remarks)?	
Sediment Deposits	Other (exp	lain in Remarks	;}		Stream, Lake, or Tide Gauge: N/A	
Drainage Patterns in Wetlands	X None				Aerial Photographs N/A	
X None					Other N/A	
Remarks:						
l					Wetland Hydrology Present or Indicated?	NO
			SO!	LS		
Map Unit Name Weinbach Silt L	oam		········		Drainage Class. Somewhat Poorly Drained	
Taxonomy Fine-silty, mixed, active, i		qualis			Field Observations Confirm Mapped Type?.	
	(Munsell Moist)		lor (Abunda	ance/Contrast)	Texture, Structure, Concretions, etc.	
	(R4/4			·	Silty Clay	
Hydric Soll Indicators:					<u> </u>	
Histosol	Reducino	Conditions		"  "	Organic Streaking in Sandy Soils	
Histic Epipedan		Low-Chroma C	olors	-	Listed on Local / National Hydric Soils List	
Sulfidic Odor	Concretion			<u> </u>	Other (Explain in Remarks)	
Aquic Moisture Regime		nic Content in S	Surface of Sa	indy Soils	X None	
Remarks:	1 1.3911 3190			9		
1					Hydric Soils Present?	NO

	ROI	JTINE WETLAND DETERMINAT	ION DAT	A FORM		
	KO	(1987 COE Wetlands Delineation		A I VIMI		
SAMPLING STA	TION INFORMAT					
Ptot ID: WAS-7		isect ID:				
Location Proposed Landfill Area		injunity ID.		· I		
Project/Site: Cane Run Landfill Project Owner: E-ON/LG&E		7/21/09 nty Jefferson				
Owner: E-ON/LG&E Investigator, Brian Fox, Rita Davis		e Kentucky			there .	
	DETERMINATION				*	100
Do Normal Circumstances exist on the		YES	7-2		1-1100	
is the site significantly disturbed (Atypic	al Situation)?	NO NO			100 min	3
Is the area a potential Problem Area?	_	NO ,				10
Hydrophytic Vegetation Present?		YES	10.0		5 255	
Welland Hydrology Present?		YES YES	dia di con	344		<b>""</b>
Hydric Soils Present?		TES	4			
Is this Sampling Point Within a Wetla	and?	YES				
Remarks:	· · · · · · · · · · · · · · · · · · ·	2000	4 / m 18		- SA	4.
					Will Control	1
					4,000	
			W. W. T.	<b>经加拉尔</b>	10 P	1 1
		VEGETATION		A A STATE OF THE PROPERTY OF T		- ALGERTAL BER
Dominant Plant Species	Stratum		ominant P	lant Species	Stratum	Indicator
1 Bidens frondosa	HERB	FACW 9.	<u> </u>			
2 Sambucus canadensis	HERB	FACW- 10			1	
3 Eleochans obtusa	HERB	OBL 11				
4 Juneus effusus 5 Juneus tenuis	HERB HERB	FACW+ 12 FAC- 13				
6	FERD	14				
7		15				
6	_	16				
Percent of Dominant Species that are C	DBL, FACW of FA	C (excluding FAC-) 80%				
Remarks:						
			Г	Hydrophy	tic Vegetation	Present? YES
	<u></u>	HYDROLOGY	·······		8	·
Primary Indicators		cators (2 or more required)	j	Field Observations:		
Inundated		loot Channels in Upper 12 in		Depth of Surface Water	N/O	
X Saturated in Upper 12 Inches	<u> </u>	ned Leaves		Depth to Water in Pit:	N/O N/O	
Water Marks Drift Lines	FAC-Neutr	Survey Data		Depth to Saturated Soil: Recorded Data (Describe in Ri		
Sediment Deposits	· <del></del>	lain in Remarks)		Stream, Lake, or Tide Gauge:	N/A	
Drainage Patterns in Wetlands	X None			Aerial Photographs:	N/A	
None				Other:	N/A	
Remarks:						
			1	Wetland Hydrolog	v Present or In	dicated? YES
		SOILS			17	
Map Unit Name: Weinbach Slit Le	oam				Poorly Draine	d
Taxonomy. Fine-silly, mixed, active, r				Field Observations Confirm Mag		
	(Munsell Moist)	Mottle Color (Abundance/Cont	trasl)	Texture, Structure,		etc.
	/R4/2 /R4/3	16YR4/6 (many/distinct) 16YR4/6 (many/distinct)	i i	Silty	Lidy	
101		To the final				
		l	,			
Hydric Soil Indicators:  Histosol	Reduning	Conditions		Organic Streaking in Sandy Soil		
Histosol Histic Epipedon		Conditions Low-Chroma Colors		Organic Streaking in Sandy Soil Listed on Local / National Hydric		
Sulfidle Odor	Concretion		-	Other (Explain in Remarks)		
Aquic Moisture Regime		nic Content in Surface of Sandy Soils		None		
Remarks:		-				
1						
			,		Huger Care	Dencament WES
T .					HADLIC POILS	Present? YES

<u></u>
and the second second
The state of the s
<b>一种人,</b>
A CONTRACTOR OF THE PARTY OF TH
6
cies Stratum Indicator
Hydrophytic Vegetation Present? N
bservations:
Surface Water N/O
Water in Pit: N/O
Saturated Soil. N/O d Data (Describe in Remarks)?
ake, or Tide Gauge. N/A
olographs: N/A
NA
Wetland Hydrology Present or Indicated? N
Class Somewhat Poorly Drained servations Confirm Mapped Type?:
Texture, Structure, Concretions, etc.
Silty Loam
<u> </u>
Streaking in Sandy Soils
Local / National Hydric Soils List

	•		ROU		ID DETERMINATI Wetlands Delineation				
	!	SAMPLING STA	TION INFORMAT		Wetlands Delinearion			<b>3</b> €	•
PloUD:	WAS-9		Tran	sect (D:	,		Market Committee		
Location:	Proposed	Landfill Area	Com	munity ID:			27346		
Project/Site		Landfill Project	Date	7/21/09					
Owner:	E-ON/LG	&E	Cour	nty: Jefferson				- 5 6 g 2 6	- No.
Investigator	Brian Fox	, Rita Davis	State	Kentucky		44	in the second of		a de la e
			DETERMINATION		1 mer		Committee and the second of the second of		
Do Normal C	lircumstani	ces exist on the s	site?	YES	Const.		A SECTION OF THE PERSON OF THE	والمراكبين	
		disturbed (Atypic		NO			Carrier Control of the Control of the		Control of the
		Problem Area?	ar oncerion,	NO NO	<b>30</b>	A	energy of the last sail of		
Hydrophytic				YES		110			1
Welland Hyd				YES		l esta			
		açıı.			76. CA				
Hydric Soils	Present			YES			A STATE OF THE STA		10.5
ls this Sami	pling Poin	t Within a Wetla	nd?	YES		View.			
Remarks:					¥×.				
	<u> </u>	*5			VEGETATION				
	Dominan	t Plant Species	Stratum	Indicator		minant	Plant Species	Stratum	Indicator
1 Polyac	onum pens		HERB	FAÇW	9				
	lonorus pho		HERB	FACU	10				
3 Ambro	sia artemis	sufolia	HERB	FACU	11			1	
4. Jungu:	s ettusus		HERB	FACW+	12				
5 Polyge	onum pens	<i>dvanicum</i>	HERB	FACW	13				
6	•	•			14				
7					15				
8					16				
Percent of D	ominani S	pecies that are C	BL FACW or FAC	rexcluding FAC	60%				
		4 *			HYDROLOGY	4	Hydrop	nytic Vegetation	Present? YES
Primary Ind	licators	······································	Secondary India	ators /2 or more			Field Observations:	···········	
[nunda				pot Channels in t			Depth of Surface Water	N/O	
<b>—</b>		es 10 lestes	hi	ned Leaves	ipper 12 m		Depth to Water in Pit:	NIO	
		er 12 Inches					1 '	N/O	
	Marks			Survey Data			Depth to Saturated Soil.		
Drift L			FAC-Neutr				Recorded Data (Describe in		
	ient Depos			lain In Remarks)			Stream, Lake, or Tide Gauge	N/A	
Draina	age Pattern	s in Wellands	X None				Aeriat Photographs:	N/A	
None							Other:	N/A	
Remarks:									
							Welland Hudron	ogy Present or Ir	ndicated? YES
<del></del>				···	SOILS		* *		
Man 4 1 1 - 1 2 1		10 de 24 1						inad	
Map Unit N		Wheeling Loam		udaife.			Drainage Class: Well Dra Field Observations Confirm M.		
			, mesic Ultic Hapli		r (Abundance/Conti	ranti	Texture, Structure		ate
Depth (in.) 0-16"	Honzon		(Munsell Moist) (R4/2		r (Abundance/Conti (4/6 (many/district)	451		e, Concretions,	eio.
0-15		101	11/4/2	אַזעוי	ara finankansuust)		5111	, vie,	
Hydric Soil	Indicators	3:		<u> </u>					
<u> </u>	Histosol		Reducing	Conditions			Organic Streaking in Sandy Sc	oils	
1	Histic Epi	ipedon	X Gleyed or	Low-Chroma Cold	) is		Listed on Local / National Hyd		
	Sulfidic C		Concretion				Other (Explain in Remarks)		
I		usture Regime			face of Sandy Soils		None		
Remarks:	i dan m		1 1. 48. 0190	<u></u>					
ļ								مايدة والمتالية	Present? YES

	ROL		AND DETERMINATIO			
SAMPLING STAT	ION INFORMAT		- vvetlarius Delineation iv	a section	9 9	Fragma Pro-
Plot ID: WAS-10		sect ID				
Location: Proposed Landfill Area		munity ID:				
Project/Site. Cane Run Landfill Project		: 7/21/09				
Owner E-ON/LG&E		nty. Jefferson			1. July 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	- X 14 - D
Investigator: Brian Fox, Rita Davis		e: Kentucky		week which have a		
	TERMINATION					DAFT SAID
Do Normal Circumstances exist on the si		YES		The second second		
is the site significantly disturbed (Atypical is the area a potential Problem Area?	Situationi	NO NO				1 200
Hydrophytic Vegetation Present?		NO	3.7			(A)
Wetland Hydrology Present?		NO			A TOTAL PROPERTY.	
Hydric Soils Present?		NO	7			
is this Sampling Point Within a Wellan	d? :	NO				
Remarks:						
RUIBERS.						
			VEGETATION			
Dominant Plant Species	Stratum	Indicator		inant Plant Species	Stratum	Indicator
1 Apocynum cannabinum 2 Schedonorus phoenik	HERB HERB	FAC FACU	9 10			
3. Lonicera japonica	VINE	FAC-	11			
4. Sorghum halepense	HERB	FACU	12			
5. Prenanthes attissima	HERB	FACU-	13			
6 Campsis radicans	HERB	FAC	14			
7			15			
8 Percent of Dominant Species that are OB			16 C-) 33%			
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	·····		HYDROLOGY		Hydrophylic Vegetation	Present <sup>9</sup> NO
Primary Indicators	Secondary India	ators (2 or mo	re regulred)	Field Observations:		
Inundated		loot Channels in		Depth of Surface Water	er N/Q	
Saturated in Upper 12 Inches		ned Leaves		Depth to Water in Pit	N/O	
Water Marks	Local Soll	Survey Data		Depth to Saturated So	il N/O	
Drift Lines	FAC-Neutr	ai Test		Recorded Data (Desc	ribe in Remarks)?	
Sediment Deposits		tain in Remarks)	<b>}</b>	Stream, Lake, or Tide	-	
Drainage Patterns in Welfands	X Nane			Aerial Photographs	N/A	
X None Remarks:				Other	N/A	
		<del> </del>	SOILS	Wetland	Hydrology Present or In	ndicated? NO
Map Unit Name Wheeling Loam	-	·	SUILS	Drainage Class \	Well Drained	
Taxonomy, Fine-loamy, mixed, active, i	nesic Ultic Haplu	udalfs		Field Observations Co	onfirm Mapped Type?	
Depth (in.) Horizon Matrix Color (M			or (Abundance/Contra:		tructure, Concretions,	etc.
0-16" 10YF	24/4				Silfy Clay	
 Hydric Soll Indicators:						
Histosof	Reducing (	Conditions		Organic Streaking in S	andy Soils	
Histic Epipedon	Gleyed or I	Low-Chroma Co	lors	Listed on Local / Natio	nal Hydric Soils List	
Suffidic Odor	Concretion			Other (Explain in Rem	•	
Aquic Moisture Regime	High Orga:	nic Content in Si	urface of Sandy Soils	X None		
Remarks:				- ,		
					Hydrin Soils	Present? NO

	KC.	OUTINE WETLA (1987 ÇO	E Wetlands			Oran			
SAMPLING ST	ATION INFORMA			T T					
lol ID: WAS-11	Tra	insect (D:			السهام	45.00		- i -	<b>A</b> •
cation: Proposed Landfill Area		mmunity ID			100			-	
roject/Site. Cane Run Landfill Project		te 7/21/09			CONT.		7.75	- M C.	The state of the state of
wner E-ON/LG&E		unty Jefferson				1 1	A Marie Sur		a a a a a a a a a a a a a a a a a a a
vestigator Brian Fox, Rita Davis		ate: Kentucky		t a tt.		TO THE		3	
	DETERMINATIO			A 15 1 3	5年2月	AV TO			1 7 7 8
o Normal Circumstances exist on the		YES NO		10 N		<b>建设</b> 器。	A Called	18 10 20	
the site significantly disturbed (Atypi	car Situation)?	NO		one was the	V. 18	THE RESERVE	863	7.60	1 3 3 3
the area a potential Problem Area? ydrophytic Vegetation Present?		YES			11 IV			<b>"特别"</b>	
vorophytic vegetation Present?		YES		2000			<b>光</b> 线 表示		100
variang Hydrology Present /		YES		14.7	A. A.		4	Section 11:	7 J.
Your doing Lieselit,				87		<b>"在海</b> 流"从底		J	N 1 /
this Sampling Point Within a Wet	and?	YES	1	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1. 1. May		
Section 19 Commission of the C				1 N		<b>第二人的</b>	3.1		
emarks:				$\mathbb{N}_{\mathbb{N}}$ $\mathbb{N}_{\mathbb{N}}$	7	15 11 11 11	1		
				N. 1		1 / 437			7 (
				A-1.	,	·	100 10	2 3 4	$\dot{y} = x^{t}$
				- At ay		3	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	<b>)</b>	<u> </u>
		10	VEGET						
Dominant Plant Species				Do	minanti	Plant Species		Stratum	Indicat
1 Scirpus cyperinus	HERB	FACW+	9.					<u> </u>	
2 Eleocharis oblusa	HERB	OBL	10					Ţ	
3 Acer rubrum	SAPLING		11						1
4 Cyperus strigosus	HERB	FACW	12.						
5 Juneus effusus	HERB	FACW+	13						
6 Polygonum pensylvanicum	HERB	FACW	1					1	1
			1.5						
7. 8			15 16						
8. ercent of Dominant Species that are lomarks;	OBL FACW or F	AC (excluding FA	16	100%					<u> </u>
8. ercent of Dominant Species that are	OBL FACW or F	AC (excluding FA	16 (C-)				Hydroph	ytic Vegetation	Present?
8. ercent of Dominant Species that are omarks:	,		HYDRO	DLOGY	P			ylic Vegetation	Present?
8. ercent of Dominant Species that are emarks:  rimary Indicators	Secondary Inc	licators (2 or mo	HYDRO	DLOGY 1)	P	Field Observation	วศธ:		Present?
8. ercent of Dominant Species that are smarks: rimary Indicators Inundated	Secondary Inc	licators (2 or mo Rooi Channels is	HYDRO	DLOGY 1)		Depth of Surface V	กร: Vater	N/O	Present?
8. ercent of Dominant Species that are omarks:  climary Indicators  Inundated X Saturated in Upper 12 Inches	Secondary Inc Oxidized Water-St	licators (2 or mo Rooi Channels I ained Leaves	HYDRO	DLOGY 1)	Þ	Depth of Surface V Depth to Water In	ons: Vater Pri	N/O N/O	Present?
8. ercent of Dominant Species that are omarks:  rimary Indicators  Inundated  X Saturated in Upper 12 Inches Water Marks	Secondary Inc Oxidized Water-St Local So	dicators (2 or mo Root Channels in ained Leaves il Survey Data	HYDRO	DLOGY 1)	Þ	Depth of Surface V Depth to Water In Depth to Saturated	ons: Nater Piti 1 Soil:	N/O N/O N/O	Present?
8. ercent of Dominant Species that are amarks:  Ilmary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines	Secondary Inc Oxidized Water-St Local So FAC-Neu	licators (2 or mo Rooi Channeis ir ained Leaves il Survey Data aral Test	HYDRO	DLOGY 1)	ь	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D	ons: Vater Pit: I Soil: Describe in R	N/O N/O N/O (emarks)?	Present?
8. ercent of Dominant Species that are smarks;  Imary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	dicators (2 or mo Root Channels in ained Leaves il Survey Data	HYDRO	DLOGY 1)	ь	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (D Stream, Lake, or T	ons: Nater Pri: 1 Soil: Describe in Ride Gauge	N/O N/O N/O N/O (emarks)?	Present?
8.  streent of Dominant Species that are smarks;  Imary Indicators  Inundated  X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands	Secondary Inc Oxidized Water-St Local So FAC-Neu	licators (2 or mo Rooi Channeis ir ained Leaves il Survey Data aral Test	HYDRO	DLOGY 1)	Þ	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph	ons: Nater Pri: 1 Soil: Describe in Ride Gauge	N/O N/O N/O N/O temarks)? N/A N/A	Present?
8.  Imary Indicators  Inundated  K Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	licators (2 or mo Rooi Channeis ir ained Leaves il Survey Data aral Test	HYDRO	DLOGY 1)	Þ	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (D Stream, Lake, or T	ons: Nater Pri: 1 Soil: Describe in Ride Gauge	N/O N/O N/O N/O (emarks)?	Present?
8.  Imary Indicators  Inundated  K Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	licators (2 or mo Rooi Channeis ir ained Leaves il Survey Data aral Test	HYDRO	DLOGY 1)	ь	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph	ons: Nater Pri: 1 Soil: Describe in Ride Gauge	N/O N/O N/O N/O temarks)? N/A N/A	Present?
8.  screent of Dominant Species that are smarks;  Imary Indicators  Inundated  X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	licators (2 or mo Rooi Channeis ir ained Leaves il Survey Data aral Test	HYDRO	DLOGY 1)	ь	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other	ons: Nater Pri di Soil: Describe in R ide Gauge	N/O N/O N/O (emarks)? N/A N/A	
8.  street of Dominant Species that are smarks:  Imary Indicators  Inundated X X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	licators (2 or mo Rooi Channeis ir ained Leaves il Survey Data aral Test	HYDRO Pre required n Upper 12	DLOGY 1) In	ь	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other	ons: Nater Pri di Soil: Describe in R ide Gauge	N/O N/O N/O N/O temarks)? N/A N/A	
8. ercent of Dominant Species that are amarks;  Ilmary Indicators Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	Ilcators (2 or mo Rooi Channeis Ir ained Leaves il Survey Data Iral Test plain in Remarks	HYDRO	DLOGY 1) In	ь	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other	ons: Nater Pri di Soil: Describe in R ide Gauge	N/O N/O N/O (emarks)? N/A N/A	
8. ercent of Dominant Species that are omarks:  rimary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	Ilcators (2 or mo Rooi Channeis Ir ained Leaves il Survey Data Iral Test plain in Remarks	HYDRO Pre required n Upper 12	DLOGY 1) In	Ь	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other	ons: Nater Pit I Soil: Describe in R ide Gauge s.	N/O N/O N/O (emarks)? N/A N/A N/A	
8. Except of Dominant Species that are smarks;  Imary Indicators  Inundated  X Saturated in Upper 12 Inches  Water Marks  Drift Lines  Sediment Deposits  Drainage Patterns in Wetlands None emarks:  Map Unit Name: Urban Land-Alifaxonomy.	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex	dicators (2 or mo Root Channels it ained Leaves it Survey Data stral Test oplain in Remarks	HYDRO Pre required n Upper 12	DLOGY 1) In	ast	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pit 1 Soil Pescribe in R ide Gauge s.	N/O N/O N/O N/O N/O (emarks)? N/A N/A N/A O/A N/A Dyped Type?	ndicated?
8. rcent of Dominant Species that are marks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Image: I	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None	Ilicators (2 or mo Rooi Channeis li ained Leaves il Survey Data irral Test cplain in Remarks	HYDRO Pre required in Upper 12	DLOGY 1) In	ast	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pit 1 Soil Pescribe in R ide Gauge s.	N/O N/O (emarks)? N/A N/A N/A	ndicated?
8. rcent of Dominant Species that are marks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Image: I	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None	Ilicators (2 or mo Rooi Channeis li ained Leaves il Survey Data irral Test cplain in Remarks	HYDRO  HYDRO  Fre required  The Upper 12    Solor (Abund	DLOGY 1) In	ast)	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pit 1 Soil Pescribe in R ide Gauge s.	N/O N/O N/O N/O N/O (emarks)? N/A N/A N/A O/A N/A Dyped Type?	ndicated?
8. rcent of Dominant Species that are marks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns In Wetlands None Imarks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns In Wetlands None Imarks:  Imary Indicators Inundated Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns In Wetlands None Imarks:  Imary Indicators Inundated Inundat	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None	Ilicators (2 or mo Rooi Channeis li ained Leaves il Survey Data irral Test cplain in Remarks	HYDRO  HYDRO  Fre required  The Upper 12    Solor (Abund	DLOGY 1) In	ast)	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pit 1 Soil Pescribe in R ide Gauge s.	N/O N/O N/O N/O N/O (emarks)? N/A N/A N/A O/A N/A Dyped Type?	ndicated?
8. rcent of Dominant Species that are marks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns In Wetlands None Imarks:  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns In Wetlands None Imarks:  Imary Indicators Inundated Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns In Wetlands None Imarks:  Imary Indicators Inundated Inundat	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None	Ilicators (2 or mo Rooi Channeis li ained Leaves il Survey Data irral Test cplain in Remarks	HYDRO  HYDRO  Fre required  The Upper 12    Solor (Abund	DLOGY 1) In	ast)	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pit 1 Soil Pescribe in R ide Gauge s.	N/O N/O N/O N/O N/O (emarks)? N/A N/A N/A O/A N/A Dyped Type?	ndicated?
8. excent of Dominant Species that are smarks;  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Imap Unit Name: Urban Land-Ali  axonomy.  Pepth (in.) Horizon Matrix Color 0-16" 10	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None	Ilicators (2 or mo Rooi Channeis li ained Leaves il Survey Data irral Test cplain in Remarks	HYDRO  HYDRO  Fre required  The Upper 12    Solor (Abund	DLOGY 1) In	ast	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pit 1 Soil Pescribe in R ide Gauge s.	N/O N/O N/O N/O N/O (emarks)? N/A N/A N/A O/A N/A Dyped Type?	ndicated?
8. excent of Dominant Species that are smarks;  Imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Imap Unit Name: Urban Land-Ali  axonomy.  Pepth (in.) Horizon Matrix Color 0-16" 10	Secondary Inc Oxidized Water-St Local Sea FAC-Net Other (ex X None  (Munsell Moist)	Ilicators (2 or mo Rooi Channeis li ained Leaves il Survey Data irral Test cplain in Remarks	HYDRO  HYDRO  Fre required  The Upper 12    Solor (Abund	DLOGY 1) In	ast)	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (D Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations	Nater Pri i Soil: Describe in R ide Gauge s. land Hydrolog a Confirm Ma re, Structure,	N/O N/O N/O (emarks)? N/A N/A N/A gy Present or t pped Type? Concretions	ndicated?
8. excent of Dominant Species that are smarks;  Imary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Map Unit Name: Urban Land-All Faxonomy. Pepth (in.) Horizon Matrix Color 0-15" 10	Secondary Inc Oxidized Water-St Local So FAC-Neu Other (e) X None  (Munsell Moist) YR6/2	Ilicators (2 or mo Rooi Channels le ained Leaves il Survey Data stral Test cplain in Remarks ling Complex Mottle Co	HYDRO TO required TO Upper 12    SOI	DLOGY 1) In	ast	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations Texture	Nater Prit is Soil: Describe in R ide Gauge 6.  Land Hydrolog S Confirm Ma re, Structure Sitty  In Sandy Soil	N/O N/O N/O N/O (emarks)? N/A N/A N/A Present or I pped Type? Concretions Clay	ndicated?
8. creent of Dominant Species that are smarks:  Imary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Map Unit Name: Urban Land-All Faxonomy. Popth (in.) Horizon Matrix Color 0-16" 100  ydric Soll Indicators: Histosol	Secondary Inc Oxidized Water-St Local So FAC-Neu Other (e) X None  (Munsell Moist) YR6/2	Ilicators (2 or mo Root Channels in ained Leaves all Survey Data stral Test cplain in Remarks Mottle Co 10°	HYDRO TO required TO Upper 12    SOI	DLOGY 1) In	ast}	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or 7 Aerial Photograph Other  Wet  Drainage Class: Field Observations Texture  Organic Streaking	nns: Nater Pri	N/O N/O N/O N/O (emarks)? N/A N/A N/A Present or I pped Type? Concretions Clay	ndicated?
8. Procent of Dominant Species that are of marks:  Imary Indicators  Inundated  X Saturated in Upper 12 Inches  Water Marks  Drift Lines  Sediment Deposits  Drainage Patterns in Wetlands  None emarks:  Map Unit Name: Urban Land-All  Taxonomy Pepth (in.) Horizon Matrix Color  0-15" 10  ydric Soll Indicators:  Histosol Histosol Histosol Histosol	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None  (Munsell Moist) PR6'2  Reducing X Gleyed of Concrete	Ilicators (2 or mo Root Channels in ained Leaves all Survey Data stral Test cplain in Remarks Mottle Co 10°	HYDRO Die required in Upper 12   Solor (Abund YR4/6 (many	DLOGY 1) In ILS Iance/Contr y/distinct)	ast	Depth of Surface V Depth to Water in Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other  Wet  Drainage Class: Field Observations Textur  Organic Streaking Listed on Local / N	nns: Nater Pri	N/O N/O N/O N/O (emarks)? N/A N/A N/A Present or I pped Type? Concretions Clay	ndicated?
8. Except of Dominant Species that are smarks:  Imary Indicators  Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands None emarks:  Map Unit Name: Urban Land-Alf Taxonomy. Pepth (in.) Horizon Matrix Color 0-16" 10  Inundated Marks Water Marks Drift Lines Sediment Deposits None 10  Map Unit Name: Urban Land-Alf Taxonomy. Pepth (in.) Horizon Matrix Color 10  Inundated Matrix Color 10  Inundated Marks Map Unit Name: Urban Land-Alf Taxonomy.  Inundated Matrix Color  Inundated Matrix Matrix Color  Inundated Matrix Matrix Color  Inundated Matrix	Secondary Inc Oxidized Water-St Local So FAC-Net Other (ex X None  (Munsell Moist) PR6'2  Reducing X Gleyed of Concrete	Ilicators (2 or mo Root Channels la ained Leaves in Survey Data stral Test cplain in Remarks whottle Co Mottle Co	HYDRO Die required in Upper 12   Solor (Abund YR4/6 (many	DLOGY 1) In ILS Iance/Contr y/distinct)	ast)	Depth of Surface V Depth to Water In Depth to Saturated Recorded Data (I Stream, Lake, or T Aerial Photograph Other  Organic Class: Field Observations Textur  Organic Streaking Listed on Local / N Other (Explain in F	nns: Nater Pri	N/O N/O N/O N/O (emarks)? N/A N/A N/A Present or I pped Type? Concretions Clay	ndicated?

	ROUT		ND DETERMINATION			
		(1987 COE	Wetlands Delineation Mar	nuali		
SAMPLING STATION				1:		
Plot ID. WAS-12	Transe			THE PARTY OF THE P	Training to the same of the sa	***
Location: Proposed Landfill Area		unity ID	· ·		Visit Control of the	
Project/Site: Cane Run Landfill Project		/21/09			The second secon	فاستستان
Owner: E-ON/LG&E		/ Jefferson			A CONTRACTOR OF THE	
nvestigator. Brian Fox Rita Davis		Kentucky				12. N
WETLAND DETE	RIMINATION	VEC 1				* * * * * * * * * * * * * * * * * * *
Do Normal Circumstances exist on the site?	⊢	YES		THE RESERVE		30.74
is the site significantly disturbed (Atypical Sit	uation) <sup>2</sup>	NO				
Is the area a potential Problem Area?		NO				
Hydrophytic Vegetation Present?	<u> </u>	NO				2.50
Welland Hydrology Present?	<u> </u>	NO		<b>产生的发展的</b> 人名	AL COMPANY OF THE PROPERTY OF	
Hydric Soils Present?		NO L				
is this Sampling Point Within a Wetland?		NO				
Remarks:				Eller March	A	
				المراجعة المراجعة المراجعة ال	A K	1.
			UEGETATION			
Deminary Blant Provide	Ctratum	Indicator	VEGETATION	ant Plant Species	Stratum	indicator
Dominant Plant Species	Stratum	FAC	9	Tank a lanc a peores	31.01.01	
1 Apocynum cannabinum 2 Schedonorus phoenix	HERB	FACU	10.			
3 Erigeron philadephicus	HERB	FACU	11.			
4 Veronia gigantea	HERB	FAC	12.			
5 Lonicera jeponica	VINE	FAC-	13.			
6 Prenanthes altissima	HERB	FACU-	14			
7 Juncus tenuis	HERB	FAC-	15			
8 Percent of Dominant Species that are OBL			16 C-1 33%			
Remarks:				н	ydrophytic Vegetation Pri	esent? NO
<u> </u>		· · · · · · · · · · · · · · · · · · ·	HYDROLOGY		·	
	condary Indica			Field Observations:	N/O	
Inundated		ot Channels in	Upper 12 in	Depth of Surface Water	OIN	
Saturated in Upper 12 Inches	Water-Stains			Depth to Water in Pit.	N/O	
Water Marks	Local Soil St	-		Depth to Saturated Soll- Recorded Data (Descri		
Drift Lines	FAC-Neutral			Stream, Lake or Tide G		
Sediment Deposits		in in Remarks	}	Aerial Photographs:	N/A	
Drainage Patterns in Wetlands X	None			Other .	N/A	
X NoneRemarks:	!.			Ditner .		
				Wetland h	Hydrology Present or Indi	cated? NO
	s -		SOILS			
Map Unit Name: Urban Land-Alfic Ud	orant-Wheeling	Complex		Drainage Class		
Taxonomy:				Field Observations Con		
Depth (in.) Horizon Matrix Color (Mur	rsell Molst)	Mottle Co	lor (Abundance/Contrast	Texture, St	ructure, Concretions, et	c.
0-16" 10YR5/	3					
Hydric Soil Indicators:						
Histosol	Reducing Co	onditions	<u> </u>	Organic Streaking in Sa	indy Sails	
Histic Epipedon		ow-Chroma Ci	olors	Listed on Local / Nation	al Hydric Soils List	
Sulfidic Odor	Concretions			Other (Explain in Rema	rks)	
Aquic Moisture Regime	<u>_</u>		urface of Sandy Soils	X None		
Remarks:					<u> </u>	
1					Hydric Soils Pr	esent? NO

	RO		DETERMINATION I			
SAMPLING ST	TION INFORMA		atlands Delineation Man	uai <u>i</u>		
Plot ID: WAS-13		nsect ID				
ocation: Proposed Landfill Area		nmunity ID:				
roject/Site: Cane Run Landfill Project	Dat	e 7/21/09		The said of the said		بالخدا
owner: E-ON/LG&E	Coi	inty Jefferson	100			iller V
nvestigator Brian Fox, Rita Davis	Sta	te: Kentucky		a the second second	The state of the s	1
	DETERMINATION	i				THE LAT
o Normal Circumstances exist on the	site?	YES	2.65	Mary Start Start		1.00
s the site significantly disturbed (Atypic		NO		Strate & Application		13.13
s the area a potential Problem Area?		NO	180 at 10 8			
hydrophytic Vegetation Present?		NO		A STATE OF THE STA		18.7
Netland Hydrology Present?		NO		A CONTROL OF THE PARTY OF THE P	7.00	1
Hydric Soils Present?		NO			Sec.	
s this Sampling Point Within a Wetja	and?	NO				
Remarks:						
			VEGETATION			
Dominant Plant Species	Stratum			ant Plant Species	Stratum Ir	idicator
1 Apocynum cannabinum	HERÐ	FAC	9.	·		
2 Schedonorus phoenix	HERB	FACU	10.			
3 Veronia gigantea	HERB	FAC	11.			
4 Sorghum halepense	HERB	FACU	12			
5			13			
6			14 15			
7		1	16			
8 Percent of Dominant Species that are of	ABL SACWLASES	C revolution FAC-)	50%			
	::::		HYDROLOGY	Hydro	ophytic Vegetation Pres	ent? NO
Primary Indicators	Secondary Ind	lcators (2 or more r		Field Observations:		
Inundated		Root Channels in Up		Depth of Surface Water:	N/O	
Saturated in Upper 12 Inches		ained Leaves	1	Depth to Water in Pit.	N/O	
		Survey Data		Depth to Saturated Soil	N/O	
					M/G	
Water Marks	FAC-Neu			Recorded Data (Describe		
Water Marks Orift Lines					in Remarks)?	
Water Marks Orift Lines SedIment Deposits		tral Test		Recorded Data (Describe	in Remarks)?	
Water Marks Orift Lines	Other (ex	tral Test		Recorded Data (Describe Stream, Lake, or Tide Gaug	in Remarks)? e: N/A	
Water Marks Drift Lines SedIment Deposits Drainage Patterns in Wetlands	Other (ex	tral Test		Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other	in Remarks)? e: N/A N/A	ated? NO
Water Marks Drift Lines SedIment Deposits Drainage Patterns in Wetlands X None	Other (ex	tral Test	SOILS	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other	In Remarks)? e: N/A N/A N/A	ated? NO
Water Marks Drift Lines SedIment Deposits Drainage Patterns in Wetlands X None Remarks:	Other (ex X None	trai Test plain in Remarks)	SOILS	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd	in Remarks)? e: N/A N/A N/A N/A rology Present or Indica	ated? NO
Water Marks Drift Lines SedIment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf	Other (ex	trai Test plain in Remarks)	SOILS	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm	In Remarks)? e: N/A N/A N/A N/A rology Present or Indica	
Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color	Other (ex None  X None  fic Udorant-Wheel  (Munsell Moist)	trai Test plain in Remarks) ing Complex	SOILS (Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct	In Remarks)? e: N/A N/A N/A N/A rology Present or Indica Mapped Type? ure, Concretions, etc.	
Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color	Other (ex None	trai Test plain in Remarks) ing Complex		Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct	In Remarks)? e: N/A N/A N/A N/A rology Present or Indica	
Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf Texonomy Depth (in.) Horizon Matrix Color	Other (ex None  X None  fic Udorant-Wheel  (Munsell Moist)	trai Test plain in Remarks) ing Complex		Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct	in Remarks)? ie: N/A N/A N/A rology Present or Indica Mapped Type? ure, Concretions, etc.	
Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf Texonomy Depth (in.) Horizon Matrix Color 0-16" 10	Other (ex None  Tic Udorant-Wheel  (Munsell Moist)  VR5/3	ing Complex  Mottle Color	(Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct	In Remarks)? ie: N/A N/A N/A rology Present or Indice Mapped Type? ture, Concretions, etc.	
Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color 0-16" 10  Hydric Soli Indicators:	Other (ex None  Tic Udorant-Wheel  (Munsell Moist)  VR5/3	ing Complex  Mottle Color	(Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct  Organic Streaking in Sandy Listed on Local / National H	In Remarks)?  e: N/A N/A N/A  rology Present or Indica  Mapped Type? ure, Concretions, etc. lity Sand  Soils lydric Soils List	
Water Marks     Orift Lines     Sediment Deposits     Drainage Patterns in Wetlands     X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color 0-16" 10  Hydric Soli Indicators:   Histosol	Other (ex None  Tic Udorant-Wheel  (Munsell Moist)  VR5/3	ing Complex  Mottle Color  Conditions  Low-Chroma Colors	(Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct  Organic Streaking in Sandy Listed on Local / National H Other (Explain in Remarks)	In Remarks)?  e: N/A N/A N/A  rology Present or Indica  Mapped Type? ure, Concretions, etc. lity Sand  Soils lydric Soils List	
Water Marks     Orift Lines     SedIment Deposits     Drainage Patterns in Wetlands     X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color     0-16" 10  Hydric Soli Indicators:       Histosol Histic Epipedon	Other (ex None  X None  fic Udorant-Wheel  (Munsell Moist)  VR5/3  Reducing  Gleyed of Concrete	ing Complex  Mottle Color  Conditions  Low-Chroma Colors	(Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct  Organic Streaking in Sandy Listed on Local / National H	In Remarks)?  e: N/A N/A N/A  rology Present or Indica  Mapped Type? ure, Concretions, etc. lity Sand  Soils lydric Soils List	
Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color 0-16" 10  Hydric Soli Indicators: Histosol Histosol Histosol Sulfidic Odor Aquic Molsture Regime	Other (ex None  X None  fic Udorant-Wheel  (Munsell Moist)  VR5/3  Reducing  Gleyed of Concrete	ing Complex    Mottle Color   Conditions   Low-Chroma Color   One	(Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct  Organic Streaking in Sandy Listed on Local / National H Other (Explain in Remarks)	In Remarks)?  e: N/A N/A N/A  rology Present or Indica  Mapped Type? ure, Concretions, etc. lity Sand  Soils lydric Soils List	
Water Marks Drift Lines SedIment Deposits Drainage Patterns in WetJands X None Remarks:  Map Unit Name: Urban Land-Alf Taxonomy Depth (in.) Horizon Matrix Color 0-16" 10  Hydric Soli Indicators: Histosol Histic Epipedon Sulfidic Odor	Other (ex None  X None  fic Udorant-Wheel  (Munsell Moist)  VR5/3  Reducing  Gleyed of Concrete	ing Complex    Mottle Color   Conditions   Low-Chroma Color   One	(Abundance/Contrast)	Recorded Data (Describe Stream, Lake, or Tide Gaug Aerial Photographs: Other  Wetland Hyd  Drainage Class Field Observations Confirm Texture, Struct  Organic Streaking in Sandy Listed on Local / National H Other (Explain in Remarks)	In Remarks)?  e: N/A N/A N/A  rology Present or Indica  Mapped Type? ure, Concretions, etc. lity Sand  Soils lydric Soils List	

	RO		ND DETERMINA				
	an measure		Wetlands Delineat	ion Manual)			
SAMPLING STAT					The state of the s		-
Plot ID WAS-14		nsect ID:				·	
Location Proposed Landfill Area Project/Site: Cane Run Landfill Project		nmunity ID: e: 7/21/09	الغ د . اي ا	Sec. 2.	Let Broke Broke Broke	Acres 1	
Owner: E-ON/LG&E		inty: Jefferson		100 100	Service .	ایدو در ایک تا محمود مصرون	
Investigator: Brian Fox Rita Davis		te Kentucky		200			
	TERMINATION		7.7				101
Do Normal Circumstances exist on the sit		YES		23		-	2. Cartina 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
ts the site significantly disturbed (Atypical		NO.	Sec.	T 40	1		
Is the area a potential Problem Area?	Ondanon;	NO.	<i>7</i> , 4, 5	وانست		1	
Hydrophytic Vegetation Present?		NO				Sec. 11.1.	
Wetland Hydrology Present?		NO		C 1343.1	A STATE OF THE STA	130	
Hydric Soils Present?		NO				57 (A) 18 (A)	
a tydna bona i Teacht		<del>  '''   '</del>					100
Is this Sampling Point Within a Wetlan	d?	NO .				-en	
Remarks:						1	
			VEGETATION		* :	3.2.6	70.700
Dominant Plant Species	Stratum	Indicator		Dom/nant	Plant Species	Stratum	Indicator
1 Apocynum cannabinum	HERB	FAC	9.				
2 Schedonorus phoenix	HERB	FACU	10				
3 Selana faben	HERB	UPL	11				
4 Sorghum halepense	HERB	FACU	12				
<ol><li>Bidens frondosa</li></ol>	HERB	FACW	13				
6 Ambrosia arlemisiifolia	HERB	FACU	14				
7 Prenanthes altissima	HERB	FACU-	15				
8. Percent of Dominant Species that are OB	I FACIAL OF FA	C (evaluation EAC	16 Crt <b>29%</b>				
Remarks:			HYDROLOGY		Hydroph	ytic Vegetation	Present? NO
Primary Indicators [	Secondary Indi	cators (2 or mor	e required)		Field Observations:		
Inundated		Root Channels in		•	Depth of Surface Water	N/O	
Saturated in Upper 12 Inches		med Leaves			Depth to Water in Pit	N/O	
Water Marks	Local Soil	Survey Data			Depth to Saturated Soil	N/O	
Drift Lines	FAC-Neul	ral Test			Recorded Data (Describe in 9	Remarks)?	
Sediment Deposits	Other (ex	olain in Remarks)			Stream, Lake, or Tide Gauge:	N/A	
Drainage Patterns in Wetlands	X None				Aerial Photographs:	N/A	
X None	<del></del>				Other	N/A	
Remarks:							
					Wetland Hydrold	gy Present or In	dicated? NO
			SOILS				
Map Unit Name: Urban Land-Alfic l	Jdorant-Wheelin	ng Complex			Drainage Class:		
Taxonomy:					Field Observations Confirm Ma		
Depth (In.)   Horizon   Matrix Color (M		Mottle Col	or (Abundance/Co	ntrasi)	Texture, Structure		etc.
0-12" 10YR 12-16" 10YR						.cam .cam	
Hydric Soil Indicators:		1					
Histosol	Reducinn	Conditions		— <del> </del> —	Organic Streaking in Sandy Sc	ııls.	
Histic Epipedon		Low-Chroma Co	lors		Listed on Local / National Hydr		
Sulfidic Odor	Concretio		*		Other (Explain in Remarks)		
Aquic Mossiure Regime			irface of Sandy Soi	s X	None		
Remarks:			,,		1		
i						Hydric Spils	Present? NO

Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator		ROU	TINE WETLAND DETERMINATI		A FORM
and the state of t				Manual)	
cation Proposed Landful Asse   Cammands   D					_
glectSter Carle Run Landmill Project war E-QNLG82 County - Reference war E-QNLG83 County - Reference war E-QNLG84 County - Ref					
respect of the Foreign of the Secondary (Alberton Senior Secondary Indicators (2 or more required)  Dominant Plant Species Stratum Indicators (2 or more required)  Dominant Plant Species Stratum Indicators (2 or more required)  Premental of Comminant Species Stratum Indicators (2 or more required)  Premental of Comminant Species Shall are OBL FACW or FAC (excluding FAC)  Were the same and the species of the secondary indicators (2 or more required)  I Disaccres oppositions  Premental Stratum Indicators (2 or more required)  From of Comminant Species Shall are OBL FACW or FAC (excluding FAC)  Were the same and the species of the				- 4	The last of the la
Sale Kentucky   Sale Kentucky   WELLAND GETERMINATION				Anna An	The state of the s
NECLAND DETERMINATION  Informal Circumstances sarial on the size the sate a genificantly disturbed (Atypical Suusion)?  NO the area a potential Problem Area?  NO dischopic Vegetarian Present? NO dischopic Vegetarian Present? NO dischopic Vegetarian Present? NO this Sampling Point Within a Welland?  NO Dominant Plant Species  Stratum Indicator NO Dominant Plant Species  Stratum Indicator  Dominant Plant Species Stratum Indicator  NO  WEGETATION  NO  Dominant Plant Species Stratum Indicator  Sampling Point Within a Welland?  NO  Dominant Plant Species Stratum Indicator  Streetchnian Boberin  HERB FACU. 11 3 Prominate allossing Herb Galler Present? NO  Dominant Plant Species  Stretchnoise Hydrophysic Vegetation Present? NO  Hydrophysic Vegetation Present? NO  Demandated Dominant Plant Species  Hydrophysic Vegetation Present? NO  Demandated Dominant Plant Species  Hydrophysic Vegetation Present? NO  Hydrophysic Vegetation Present? NO  Demandated Dominant Plant Species  Hydrophysic Vegetation Present? NO  Demandated Dominant Plant Spec				-	
Demirant Plant Species   VES   No			· · · · · · · · · · · · · · · · · · ·	স্বাহ্	The state of the s
the site significantly disturbed Atyporal Situation   No had are an applicating Problem Area   No distance   No di			VES	7	
the area a potential Problem Area?  MO didophylic Vegetian Present?  NO didophylic Vegetian Present?  NO dido Soin Present Plant Species  Stratum Indicator  1 Dioscorea opposition  1 Present Soin Present Plant Species  No dido Soin P					
VEGETATION   Plant Species   Stratum   Indicator   No   Plant Species   N		,ar Substicit)			The state of the s
this Sampling Point Within a Welland?    No			100010010	200	
this Sampling Point Within a Welland?    Dominant Plant Spacies   Stratum   Indicator		ŀ		13	The Party william
this Sampling Point Within a Westand?    No		ŀ		23.38	
Dominant Plant Spacies   Stratum   Indicator   Dominant Plant Spacies   Stratum   Indicator	Hydric Soils Present?		NO I	4	
Dominant Plant Spacies   Stratum   Indicator   Stratum   Indicator   Plant Spacies   Plant	ls this Sampling Point Within a Wetla	and? [	NO E NO	A COLUMN	
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator	Remarks:				<b>首大学</b> 等等
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator	David		27/2 · /	10	Willey was
1 Dioscorea appositiona					Steel Lindington
2. Schedonorus phoenir 3. Prenanthes altissima 4. HERB FACU 10 4. 12 5. 6 13 6. 7 16 7 16 7 16 7 17 7 17 7 17 7 18 7 19 7 19 7 19 7 19 7 19 7 19 7 19 7 19				ominant f	riant Species Stratum indicato
### Prenanthes altissims ### HERB FACU 11 12 13 13 14 15 15 16 16 17 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19			·=		
12 13 14 17 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19			= =		
13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16		LIEVS			
### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Properties of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   ### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are OBL_FACW or FAC (excluding FAC-)   #### Obligation of Dominant Species that are Obligation of Dominant Species that are Obligation of Dominant Species that are Obligation of		) !			
### Second of Dominant Species that are OBL FACW or FAC (excluding FAC-)   ### DROLOGY     Hydrophytic Vagetation Present? NO			_		
16.  remarks:    Hydrophytic Vegetation Present?   NO	_				
emarks:    Hydrophytic Vegetation Present?   No			•		
### Hydrophytic Vegetation Present(*) NO  ### NO Notificators   Secondary Indicators (2 or more required)   Field Observations:   Inundated		OBL FACW or FAC			
Inundated   District   Depth of Surface Water: N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Surface Water: N/O   Depth to Water in Prt   N/O   Depth to Water in Prt   N/O   Depth to Water in Prt   N/O   Depth to Surface Water in Prt   N/O   Depth to Surface			HYDROLOGY	<u></u>	Hydrophytic Vegetalion Present?
Inundated   Oxidized Root Channels in Upper 12 in   Depth of Surface Water: N/O   Depth of Surface Water: N/O   Depth to Water in Prl   N/O   Depth to Surface Water: N/O   Depth to Water: N/O   De	Primary Indicators	Secondary India	ators (2 or more required)	•	Field Observations:
Saturated in Upper 12 Inches Water-Stained Leaves Uccal Soil Survey Data Depth to Water in Pit N/O Depth to Saturated Soit N/O Stream, Lake, or Tide Gauge N/A Aerial Pholographs N/A Other N/A  Wetland Hydrology Present or Indicated? N/O  N/O  Water-Stained Leaves Depth to Water in Pit N/O Depth to Saturated Soit N/O Depth to Saturated Soit N/O  Stream, Lake, or Tide Gauge N/A Aerial Pholographs N/A Other N/A  Wetland Hydrology Present or Indicated? N/O  SOILS  Field Observations Confirm Mapped Type? Field Observations Confirm Mapped Type? Field Observations Confirm Mapped Type?  Field Observations Confirm Mapped					Depth of Surface Water: N/O
Water Marks			• • •		Depth to Water in Prt N/O
Drift Lines   Saddment Deposits   Other (explain in Remarks)   Other   Ot					1 '
Sediment Deposits Drainage Patterns in Wetlands X None  Total Photographs Other (explain in Remarks) Other  Wetland Hydrotogy Present or Indicated? NO  SOILS  Wetland Hydrotogy Present or Indicated? NO  SOILS  Map Unit Name: Urban Land-Affic Udorant-Wheeling Complex Taxonomy: Drainage Class Field Observations Confirm Mapped Type? Pield Observations Confirm Mapped Type? Pield Observations Confirm Mapped Type?  Total Photographs N/A N/A  Wetland Hydrotogy Present or Indicated? NO  SOILS  Map Unit Name: Urban Land-Affic Udorant-Wheeling Complex Field Observations Confirm Mapped Type?  Pield Observations Confirm Mapped Type?  Field Observations Confirm Mapped Type?  Field Observations Confirm Mapped Type?  Toxture, Structure, Concretions, etc.  Silty Sand  Silty Sand  Sydric Soil Indicators:    Histosol			-		
Drainage Patterns in Wetlands X None  May Unit Name: Urban Land-Affic Udorant-Wheeling Complex  Taxonomy: Field Observations Confirm Mapped Type?  Total (In.) Horizon Matrix Cotor (Munsell Moist) Mottle Color (Abundance/Contrast)  Texture, Structure, Concretions, etc.  Silly Sand  Mottle Color (Abundance/Contrast)  Sydnic Soil Indicators: Confirm Mapped Type?  Texture, Structure, Concretions, etc.  Silly Sand  Organic Streaking in Sandy Soils  Listed on Local / National Hydric Soils List  Other (Explain in Remarks)  Aquic Moisture Regime High Organic Content in Surface of Sandy Soils  None		<del>-</del>			
Vertiand Hydrology Present or Indicated?   NO			and an item and		_
Wetland Hydrology Present or Indicated?   NO		1.10.10			
SOILS   Drainage Class   Taxonomy:	Remarks:				1777
SOILS   Drainage Class   Taxonomy:					Method Hudrology Procent or Indicated 2
Map Unit Name: Urban Land-Affic Odorant-Wheeling Complex Field Observations Confirm Mapped Type?    Depth (in.)   Horizon   Matrix Color (Munsell Molst)   Mottle Color (Abundance/Contrast)   Texture, Structure, Concretions, etc.			SOILS		vvenand mydrology r tesant or mutcated?
Taxonomy:    Depth (in.)   Horizon   Matrix Color (Munsell Molst)   Mottle Color (Abundance/Contrast)   Texture, Structure, Concretions, etc.   O-16"   10YR5/3   Silty Sand	Map Unit Name: Urban Land-Affi	ic Udorant-Wheelin			
Depth (in.) Horizon Matrix Color (Munsell Molst) Mottle Color (Abundance/Contrast) Texture, Structure, Concretions, etc.    Silty Sand	Taxonomy:				Field Observations Confirm Mapped Type?
Indicators:   Histosol	Depth (in.) Horizon Matrix Color		Mottle Color (Abundance/Cont	rast)	
Histosol Reducing Conditions Organic Streaking In Sandy Soils Histic Epipedon Gleyed or Low-Chroma Cotors Listed on Local / National Hydric Soils List Sulfidic Odor Concretions Other (Explain in Remarks)  Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None	0-16"	YR5/3			Silty Sand
Histosol Reducing Conditions Organic Streaking In Sandy Soils Histic Epipedon Gleyed or Low-Chroma Cotors Listed on Local / National Hydric Soils List Sulfidic Odor Concretions Other (Explain in Remarks)  Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None	Hydric Soil Indicators:				
Histic Epipedon Sulfidic Odor Sulfidic Odor Aquic Moisture Regime High Organic Content in Surface of Sandy Soils  X None  High Organic Content in Surface of Sandy Soils  X None		Reducing	Conditions	Ī	Organic Streaking In Sandy Spils
Sulfidic Odor Concretions Other (Explain in Remarks) Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None					
Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None temarks:					
lemarks:				Y	
		High Orga	mic Coment in Surface or Sandy Solls	^	I ANTIG
Hydric Soils Present? NC	remarks:				
Hydric Soils Present? NC					
					Hydric Soils Present?

Remarks:    SAMPLING STATION INFORMATION   Continuing   C			(1987 COE W	DETERMINATION etlands Defineation Ma			<u>.</u>
Community   Department   Proposed Landist Project   Department   Dep	SAMPLING STATE	ON INFORMAT	ION				
Processing Content Run Landial Propect   Date   77/109	Plot ID: WAS-16	Tran	sect ID:		_		
Secondary Indicators	ocation. Proposed Landfill Area	Com	imunity ID:				
Non-control   State						ول المتعلقة والمتعلقة فتعلق معيث	
Do Normal Circumstances exist on the safe?  In the safe significantly disturbed (Atypical Situation)?  In the safe significant (					19		
Sommers Circumstances exist on the self?  If the area a potential Problem Ama?  If the area a potential Prob	nvestigator: Brian Fox, Rita Davis						The state of the s
she site significantly disturbed (Atypical Situation)?  By a size a potential Problem Area of the Stratum Indicator (NO)  Welliam Hydroopy Present?  NO   VEGETATION   Vegetation Present?  NO   Vegetation Present?  Substantial Polant Species   Stratum Indicator   No   Vegetation Present?  Substantial Polant Species   Stratum Indicator   No   Vegetation Present?  Semarks:    Vegetation Present?	WETLAND DE	TERMINATION		- Tale 1		The second second	
s na area a potential Problem Area?    NO	Do Normal Circumstances exist on the sit	ie?	YES	1 1 1		and the last	
Vestigned Hydrodropy Present?   NO   NO   NO   NO   NO   NO   NO   N	s the site significantly disturbed (Atypical	Situation)?	NO	* AL 3 TO 1			
No   No   No   No   No   No   No   No	s the area a potential Problem Area?	J	NO			7 70	
s this Sampling Point Within a Wetland?    NO     NO     NO	ydrophytic Vegetation Present?		NO			The second section is the second	
A this Sampling Point Within a Wetland?    Somarks:	Wetland Hydrology Present?		NÖ				
Somarks:    Dominant Plant Species   Stratum   Indicator   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator   Stratum   Indicator   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator   Stratum   Indicator   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator   I		ľ	NO.				
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator   Indica						K reministration	1.00
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator	s this Sampling Point Within a Wetlan	d?	NO				
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator   Schedonorus pricerix   HERB   FACU   9   10   10   10   10   10   10   10	Remarks:					1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator							17.1
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator					C 600		
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator						3 .3-	
Dominant Plant Species   Stratum   Indicator   Dominant Plant Species   Stratum   Indicator				22 T. 124-22			<u> </u>
Schedonoms procents  Schedonoms procents  HERB FACU 9 2 Salara fabor  HERB DPL 10 4 Dacytis glomerate  HERB FACU 12 5 Ambross adremisulatio  Ferenanthes sitissima  HERB FACU 13 5 Percent of Dominant Species that are OBL FACW or FAC (excluding FAC-) 0%  Remarks:  HYDROLOGY  Hydrophytic Vegetation Present?  Hydrophytic	. 4			VEGETATION			
2 Satura faber   HERB   UPL   10   3 Sorghum halapense   HERB   FACU   12   5 Ambrosia artemisibidia   HERB   FACU   13   5 Prenanthes altissima   HERB   FACU   13   6   Forcer of Dominant Species that are OBL. FACWor FAC (excluding FAC-)   16   7   Remarks:    Hydrophytic Vegetation Present*	Dominant Plant Species	Ştratum	Indicator	Dom	inant Pla	nt Species	Stratum Indicator
3 Sorghum halepense HERB FACU 11 4 Dactylis glomerate HERB FACU 12 5 Ambrosia artemissibila HERB FACU 13 6 Prenanthes sitissima HERB FACU 13 7 6. 15 6 Prenanthes sitissima HERB FACU 15 15 16 7 15 16 16 16 17 17 17 17 17 17 17 17 17 17 17 17 17		HERB	FACU	9			
4 Dactylis glomerate 5 Ambrosia artemissifolia 6 Prenanthes sitissima 7 HERB FACU 13 8 Percent of Dominant Species that are OBL FACW or FAC (excluding FAC-) 16 8 Prenanthes sitissima 7 HERB FACU 13 8 Percent of Dominant Species that are OBL FACW or FAC (excluding FAC-) 16 8 Prenanthes sitissima 8 HERB FACU 13 9 Percent of Dominant Species that are OBL FACW or FAC (excluding FAC-) 16 9 Primary Indicators 1 Hydrophytic Vegetation Present?  HYDROLOGY  Hydrophytic Vegetation Present?  HYDROLOGY  Hydrophytic Vegetation Present?  HYDROLOGY  Hydrophytic Vegetation Present?  Hydrophytic Vegetati	2 Setaria faberi	HERB	Ų₽L	10			
S Ambrosis artemissidola B PERB FACU 13 HERB FACU 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	3 Sorghum halepense	HERB	FACU	11			
Bercent of Dominant Species that are OBL_FACW or FAC (excluding FAC-) 0%  Remarks:    Hydrophytic Vegetation Present?	4 Dactylis glomerata	HERB	FACU	12			
Percent of Dominant Species that are OBL. FACW or FAC (excluding FAC-) 0%  Remarks:    Hydrophytic Vegetation Present*   Hydrophytic Vegetatio	5. Ambrosia artemisiifolla	HERB	FACU				
Percent of Dominant Species that are OBL. FACW or FAC (excluding FAC+)  Remarks:    Hydrophytic Vegetation Present?	6 Prenanthes altissima	HERB	FACU-				
Percent of Dominant Species that are OBL. FACW or FAC (excluding FAC-)  Remarks:    Hydrophytic Vegetation Present?	7						
Hydrophytic Vegetation Present?	<u> </u>		1				
Hydrophytic Vegetation Present?   Primary Indicators		JL, FACTY OF FA	C Texcitioning - MC-7				<del>-</del>
Primary Indicators   Inundated   Oxidized Root Channels in Upper 12 in   Depth of Surface Water   N/O     Saturated in Upper 12 Inches   Uccal Soil Survey Data   Depth to Water in Prit   N/O     Water Marks   Uccal Soil Survey Data   Depth to Saturated Soil   N/O     Drift Lines   FAC Neutral Test   Recorded Data (Describe in Remarks)?     Sediment Deposits   Other (explain in Remarks)   Other (explain in Remarks)   Aerial Photographs   N/A     X None   SOILS   Wetland Hydrology Present or Indicated?     Map Unit Name   Urban Land - Udorthent Complex   Taxonomy   Depth (in.)   Horizon   Matrix Color (Munsell Molst)   Mottle Color (Abundance/Contrast)   Texture, Structure, Concretions, etc.     Hydric Soil Indicators:   Reducing Conditions   Usera   Differ Color (Internal Hydrology Soils   Usera   Usera   Nand Hydrology Soils   Usera   Usera   Nand Hydrology Soils   Usera   Usera   Nand Hydrology Soils   Usera   U						Hydrophytic	Vegelation Present? N
Inundated   Oxidized Roof Channets In Upper 12 in   Depth of Surface Water: N/O   Saturated in Upper 12 Inches   Water-Stained Leaves   Depth to Water in Pri   N/O   Depth to Saturated Soil: N/O   Recorded Data (Describe In Remarks)?   Sediment Deposits   Other (explain in Remarks)   Stream Lake, or Tide Gauge: N/A   Aerial Photographs   Advisor Aerial Photographs   N/A   Aerial Photographs   Aerial Photographs   N/A   Aerial Photographs   N/A   Aerial Photographs   Aerial Photographs   Aerial Photographs   N/A   Aerial Photographs	ą.		ą:	HYDROLOGY			····
Saturated in Upper 12 Inches  Saturated in Upper 12 Inches  Water-Stained Leaves  Depth to Water in Pit N/O  Depth to Saturated Soil	Primary Indicators	Secondary Indi	cators (2 or more r	equired)	F	Fleid Observations:	
Water Marks	·———	Oxidized F	Root Channels in Up	iper 12 in		epth of Surface Water	N/O
Water Marks	Saturated in Upper 12 Inches	Water-Sta	med Leaves		ים	epth to Water in Pit	N/O
Drift Lines   FAC-Neutral Test   Recorded Data (Describe in Remarks)?		Local Soil	Survey Data		p.	epth to Saturated Soil:	N/O
Sediment Deposits Drainage Patterns In Wetlands X None  Remarks:  Wetland Hydrology Present or Indicated?  SOILS  Map Unit Name Urban Land - Udorthent Complex Taxonomy Depth (in.) Horizon: Matrix Color (Munsell Moist) Mottle Color (Abundance/Contrast)  Texture, Structure, Concretions, etc.  Hydric Soil Indicators:  Histosof Histic Epipedon Suifface Odor High Concretions Gieyed or Low-Chroma Colors High Organic Streaking in Sandy Soils Listed on Local / National Hydric Soils List Other (Explain in Remarks) N/A  Aerial Photographs N/A   Wetland Hydrology Present or Indicater?  Field Observations Confirm Mapped Type?  Field Observations Confir					R	ecorded Data (Describe in Rem	arks)?
Drainage Patterns In Wetlands X None Cities In Wetlands X None Cities In Wetland Hydrology Present or Indicated?  Wetland Hydrology Present or Indicated?  SOILS  Map Unit Name Urban Land - Udorthent Complex Drainage Class:  Taxonomy:  Depth (in.) Horizon Matrix Color (Munsell Moist) Mottle Color (Abundance/Contrast) Texture, Structure, Concretions, etc.  0-16 10YR5/3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Other (ext	olain in Remarks)		SI	tream Lake, or Tide Gauge:	N/A
None   Citier   N/A		X None			A	erial Photographs	N/A
Wetland Hydrology Present or Indicated?   SOILS		$\neg$			0	liner	N/A
Map Unit Name   Urban Land - Udorthent Complex   Drainage Class:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Taxonomy:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Texture, Structure, Concretions, etc.   O-16"   10YR5/3   O							
Map Unit Name   Urban Land - Udorthent Complex   Drainage Class:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Taxonomy:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Texture, Structure, Concretions, etc.   O-16"   10YR5/3   O							
Map Unit Name   Urban Land - Udorthent Complex   Drainage Class:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Taxonomy:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Texture, Structure, Concretions, etc.   O-16"   10YR5/3   O						_	
Map Unit Name   Urban Land - Udorthent Complex   Drainage Class:   Field Observations Confirm Mapped Type?:   Field Observations Confirm Mapped Type?:   Taxonomy:   Field Observations Confirm Mapped Type?:   Texture, Structure, Concretions, etc.   O-16"   10YR5/3   O						Wetland Hydrology F	resent or Indicated? N
Taxonomy  Depth (in.)   Horizon   Matrix Color (Munsell Moist)   Mottle Color (Abundance/Contrast)   Texture, Structure, Concretions, etc.  D-16"   10YR5/3   0  Hydric Soil Indicators:  Histosol   Histosol   Reducing Conditions   Organic Streaking in Sandy Soils   Listed on Local / National Hydric Soils List   Concretions   Other (Explain in Remarks)   Other (Explain in Remarks)   Aquic Moisture Regime   High Organic Content in Surface of Sandy Soils   X   None				SOILS			
Taxonomy  Depth (in.) Horizon Matrix Color (Munsell Moist) Mottle Color (Abundance/Contrast) Texture, Structure, Concretions, etc.  0-16" 10YR5/3 0  Hydric Soil Indicators:  Histosol Histosol Histic Epipedon Gieyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Other (Explain in Remarks)  Sulfidic Odor Concretions High Organic Content in Surface of Sandy Soils X None	Man Unit Name: Urban Land - Lide	ortheol Complex			D	rainage Class;	
Depth (in.) Horizon Matrix Color (Munsell Moist) Mottle Color (Abundance/Contrast) Texture, Structure, Concretions, etc.    O-16"   10YR5/3					F	leid Observations Confirm Mappe	d Type?:
Hydric Soil Indicators:  Histosof Histic Epipedon Gieyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Odor Concretions Other (Explain in Remarks)  Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None	Death (in.) Horizon: Matrix Color (N	Aunsell Moisti	Mottle Color	(Abundance/Contras			
Hydric Soil Indicators:  Histosol Reducing Conditions Histic Epipedon Gieyed or Low-Chroma Colors Sulfidio Odor Concretions Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None  Organic Streaking in Sandy Soils Listed on Local / National Hydric Soils List Other (Explain in Remarks)						0	
Histosol Reducing Conditions Organic Streaking in Sandy Soils Histic Epipedon Gleyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Sulfidic Odor Concretions Other (Explain in Remarks) Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None	, , ,	-					
Histosol Reducing Conditions Organic Streaking in Sandy Soils Histic Epipedon Gleyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Sulfidic Odor Concretions Other (Explain in Remarks) Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None							
Histosol Reducing Conditions Organic Streaking in Sandy Soils Histic Epipedon Gleyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Sulfidic Odor Concretions Other (Explain in Remarks) Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None			1				
Histosol Reducing Conditions Organic Streaking in Sandy Soils Histic Epipedon Gleyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Sulfidic Odor Concretions Other (Explain in Remarks) Aquic Moisture Regime High Organic Content in Surface of Sandy Soils X None	l l					<u> </u>	
Histic Epipedon Gleyed or Low-Chroma Colors Listed on Local / National Hydric Soils List Sulfidio Odor Concretions Other (Explain in Remarks) Aquic Molsture Regime High Organic Content in Surface of Sandy Soils X None							
Sulfidic Odor Concretions Other (Explain in Remarks) Aquic Moisture Regime High Organic Content in Surface of Sandy Solls X None	Hydric Soil Indicators:	Dodumon					
Aquic Moisture Regime High Organic Content in Surface of Sandy Solls X None			Low-Chroma Color	S	]Li	isted on Local / National Hydric S	oils List
1.444.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	Histosal Histic Epspedan	Gleyed or					
Remarks:	Histosal Histic Epipedan Sutfidic Odor	Gleyed or Concretion	กร				
	Histosal Histic Epipedan Suffidic Odor	Gleyed or Concretion	กร	ice of Sandy Solls			
	Histosal Histic Epipedan Sulfidic Odor Aquic Moisture Regime	Gleyed or Concretion	กร	ace of Sandy Solls			_
	Histosal Histic Epipedan Sulfidic Odor Aquic Moisture Regime	Gleyed or Concretion	กร	ace of Sandy Solls		lone	

		ND DETERMINATION			
		Wetlands Delineation Mar	nual)	12	7.00
	TION INFORMATION			~	
Plot ID: WAS-17	Transect ID		21000		er <b>=1</b> a., "⊊#
ocation Proposed Landfill Area Project/Site Cane Run Landfill Project	Community ID Date, 7/21/09			- ,	# - TOTAL # 1
Owner E-ON/LG&E	County Jefferson				2
nyestigator Brian Fox, Rita Dayls	State: Kentucky	0.50	A STATE OF THE STA		Y v l
	DETERMINATION	A Z HARL		20	
Do Normal Circumstances exist on the			0.00		100
s the site significantly disturbed (Atypic			是 (2) 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图	经营业 。	13 (17 T)
s the area a potential Problem Area?	NO				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
hydrophytic Vegetation Present?	YES			AND LINE	15 6 20 2
Wetland Hydrology Present?	YES			4	<b>经</b>
Hydric Soits Present?	ŸES				
is this Sampling Point Within a Wotle	und? YES				
Remarks:	· · · · · · · · · · · · · · · · · · ·			Maria	
			<b>第1分像条</b>		
		VEGETATION			
Dominant Plant Species			ant Plant Species	Stratum	Indicator
1. Scirpus cypennus	HERB FACW	9		1	
2. Eleocharis oblusa	HERB OBL	10			
3 Mentha spicata	HERB FACW	11. 12.			
4 Cyperus strigosus 5 Juncus effusus	HERB FACW+	12.			
6 Juneus emusus 6 Juneus tenuis	HERB FAC-	14			
7 Polygonum pensylvanicum	HERB FACW	15			
8. Rumex crispus	HERB FACU	16			<u>[</u>
Percent of Dominant Species that are 0	OBL, FACW or FAC (excluding FAI	C-) <b>75</b> %			
mapping the state of the state		HYDROLOGY	Hydroph	ytic Vegetation	Present? YES
Primary Indicators	Secondary Indicators (2 or mo		Field Observations:		
X Irrundated	Oxidized Root Channels in		Depth of Surface Water:	N/O	
X Saturated in Upper 12 Inches	Water-Stained Leaves		Depth to Water in Pit	N/O	
Water Marks	Local Soil Survey Data		Depth to Saturated Soil	N/O	
Drift Lines	FAC-Neutral Test		Recorded Data (Describe in 6		_
Sediment Deposits	Other (explain in Remarks)	)	Stream, Lake, or Tide Gauge	N/A	
Drainage Patterns in Wetlands	X None		Aerial Photographs:	N/A N/A	
None Remarks:		<del></del>	Other	N/A	
			Wetland Hydrolo	av Present or tr	ndicated? YES
	<u> </u>	ŞOILS	Trotto- Typrote	34	
Map Unit Name, Urban Land-Affi	c Udorant-Wheeling Complex	70.20	Drainage Class		· · · · · · · · · · · · · · · · · · ·
Taxonomy Croan Eand-Mile	o oggi one emosting compass		Fleid Observations Confirm Ma	ipped Type?	
		lor (Abundance/Contrast	Texture. Structure	, Concretions,	etc.
	YR4/2 10°	rR4/6 (many/distinct	Silty	Clay	
Hydric Soil Indicators:					
Histosol	Reducing Conditions		Organic Streaking In Sandy Sc	iils	
Histo Spipedon	X Gleyed or Low-Chroma Co	olors	Listed on Local / National Hydr	ic Soils List	
Sulfidic Odor	Concretions		Other (Explain in Remarks)		
Aquic Moisture Regime	High Organic Content in S	urface of Sandy Soils	None		
Remarks:					
				Hydric Soils	Present? YES

	ROU		ND DETERMINATION		ORM		· · · · ·
######################################	TAN INCORPET		Wetlands Delineation Ma	nual)	<u> </u>	<del></del>	
	TION INFORMATI	ect ID:					
Plot ID: WAS-18 Location: Proposed Landfill Area		nunity ID:	——————————————————————————————————————				
Project/Site Cane Run Landfill Project		7/21/09					
Ówner E-ON/LG&E	Coun	ty Jefferson			A		
nvestigetor: Brian Fox. Rita Davis		: Kentucky	TYPE OF STANK	C7."—	and the second	4.630 425	<b>X</b> >
	DETERMINATION			1	k Marie Taran	67	San State Con
Do Normal Circumstances exist on the	<u> -</u>	YES				10 m	
is the site significantly disturbed (Atypic	tal Situation)?	NO				100	
Is the area a potential Problem Area?		NO NO		The second	The Later of the L		
Hydrophytic Vegetation Present? Wetland Hydrology Present?	ļ.	NO	1977 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984			1.1	
Hydric Solls Present?	-	NO		721A			30.00
	d2 Γ	NO			T. W.		$L_{p}^{-1}$
is this Sampling Point Within a Wetle							
Remarks:							
			VEGETATION				
Dominant Plant Species		Indicator		nant Plan	it Species	Stratum	Indicator
1 Dioscorea oppositifolia	VINE	NL	9				
2 Schedonorus phoenix	HERB	FACU	1 <u>0</u> 11.				
Lonicera japonica     Sorghum halepense	VINE HERB	FAC- FACU	12.				
5 Bidens frondosa	HERB	FACW	13.				
6. Ambrosia artemisiifolia	HERB	FACU	14.				1
7 Prenanthes altissima	HERB	FACU.	15.				
8 Rumex crispus Percent of Dominant Species that are to	HERB ]	FACIL	[ <u>16</u> C-) <b>14%</b>				
			HYDROLOGY		Hydrop	hytic Vegetation	Present? NO
Primary Indicators	Secondary Indic	atore (2 or mor		F	leid Observations:		
Inundated		oot Channels in			pth of Surface Water	N/O	
Saturated in Upper 12 Inches	Water-Stair		Oppor IZ III		oth to Water in Pit.	N/O	
Water Marks	Local Soil S				pth to Saturated Soil.	N/Q	
Drift Lines	FAC-Neutra	al Test			corded Data (Describe in		_
Sediment Deposits		am in Remarks)	1		eam, Lake, or Tide Gauge	N/A	
Drainage Patterns in Wetlands	X None				riai Photographs	N/A	
X None Remarks:	<u> </u>			Oti	ner	N/A	-
							<b>-</b>
			SOILS		Wetland Hydrol	ogy Present or I	ndicated? NO
Map Unit Name: Urban Land-Alf	ic Udorant-Wheelin	Complex		Dr	aınage Class		
Taxonomy		2 - W. 1 - 2 P - 12		Fie	eld Observations Confirm M		_
Depth (in.) Horizon Matrix Color	(Munsell Moist)	Mottle Col	or (Abundance/Contrast	t)	Texture, Structur		etc.
0-16" 10	ŸR4/4				Sift	y Clay	
Hydric Soil Indicators:							
Histosof	Reducing (		T.		ganic Streaking in Sandy S		
Histic Epipedon		.ow-Chroma Co -	1012	\ <del>-</del>	sted on Local / National Hyd hos (Suplain in Romarks)	ITIC SONS LIST	
Sulfidic Odor	Concretion		urface of Sandy Soils	X No	her (Explain in Remarks)		
Aquic Moisture Regime	1 leads ordar	iic content in Si	инасе от рапоу роць	1 × ,190	nte		
Remarks:							
				Г		Hydric Soils	Present? NO

			ROL			RMINATION Delineation Mar		A FORM		
		AUDI ING STAT	TION INFORMAT		e vvetianos	Deitheanon war	(luar)	-		
Plot ID:	WAS-19	Mill Elito G.A.		nsect ID						
		Landfill Area		rmunity ID:		1				
		Landfill Project		e: 7/21/09			2.3	المراكب المستشف وبالناء		Carlotte Comment
Dwner	E-ON/LG8	-Ε	Cou	nty Jefferson		100		A STATE OF THE PARTY OF THE PAR		The state of the s
Investigator:	Bhan Fox,	Rita Davis		e Kentucky					No. of the	· view
		WETLAND D	ETERMINATION			The state of the s	# 10 A		4	11.5
Do Normal Ci	rcumstanc	es exist on the s	ite?	YES		4. 4. 5	2/3			
is the site sig	nificantly d	isturbed (Atypica	al Situation)?	NO		COR.	ر. الأر			
s the area a	potential P	roblem Area?		ON		1. C. C. C.	الأراث	A SECOND		<b>250</b> (200
Hydrophytic \	/egetation	Present?		YES		11.11.41.2			1	9 90
Wetland Hydi	ology Pres	sent?		YES			4.45		ે.∀ેં	
Hydric Soils F	Present?			YES ]			<b>1.</b> Il			<b>大学</b> 法计
ls this Samp	ling Point	Within a Wetjar	nd?	YES						4.8
Remarks:										
	<del></del>	· · · · · · · · · · · · · · · · · · ·			VEGE.	TATION				
	Dominant	Plant Species	Stratum	Indicator		Domir		lant Species	Stratum	Indicator
	rundinace		HERB	FACW+	1	Rumex crispus			HERB	FACU
	aris obtusa	1	HERB	OBI.	10					
3 Mentha			HERB	FACW	11.					
	anthus occ		SHRUB	OBL	12.				1	
	s stagosus	\$	HERB HERB	FACW+	14					
6. Juneus			HERB	FAC-	15					
7 Juneus	renus num pens)	Juanicum	HERB	FACW	16					
Dercent of Da	ominant Sc	ecles that are O	BL. FACW or FA			78%				
	<del></del>		<u>,</u> .		HVDR	OLOGY		Hydroph	ytic Vegetation	Present? YE
0-1		·—··· · · · · · · · · · · · · · · · · ·	Secondary Ind	icators (2 pc mo				Field Observations:		
Primary Indi Inunda				Root Channels				Depth of Surface Water	N/Q	
L —— ¬		er 12 Inches		ened Leaves	., фрра, .2			Depth to Water in Pit	N/O	
X Water		St 12 mates		Survey Data				Depth to Saturated Soil:	N/O	
Drift Li			FAC-Neul					Recorded Data (Describe In F	(emarks)?	
	ent Deposi	t <b>s</b>	<u> </u>	olain in Remarks	s)			Stream, Lake, or Tide Gauge	N/A	
		s in Wetlands	X None		-,			Aerial Photographs:	N/A	
None	90 1 2110111		<del></del>					Other	N/A	
Remarks:										_
							i	Wetland Hydrolo	av Present or h	ndicated?! YF
<del></del>		. <u></u>			sc	OILS		7760010 11707010	2)	
Map Unit N	ame.	Urban Land - Uc	forthent Complex					Drainage Class		
Taxonomy.	•							Field Observations Confirm Ma	ppea Type?	
Depth (In.)	Horizon		(Munsell Moist)		olor (Abun )YR4/6 (ma	dance/Contrast	()	Texture, Structure	Clay	atc.
O-16"		101	(R4/2		) 1 K4/5 (F112	nyaisanei		Silly	o.e.y	
Hydric Soll	Indicators	· · · · · · · · · · · · · · · · · · ·	<del>-</del>							
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Histosol		Reducing	Conditions				Organic Streaking in Sandy So		
	Histic Epi	pedon		r Low-Chroma C	Colors			Listed on Local / National Hydr	ic Soils List	
1 🗀	Sulfidic C		Concretic					Other (Explain in Remarks)		
		nsture Regime		anic Content in !	Surface of S	Sandy Soils		None		
Remarks:										
									Hydric Soils	Present? YE

			Wetlands Delineat	on Manual)	A FORM		
SAMPLING STA	TION INFORMATI		<b>74</b> 1	7.56.2019			
ot ID: WAS-20		sect ID			<b>运动和</b> 侧侧部: <b>指</b> 含		
ocation. Proposed Landfill Area		munity ID:		6 10 11	到的话识别是做这一情况		
oject/Site: Cane Run Landfill Project		7/28/09					
wner: E-ON/LG&E		nty: Jefferson e: Kentucky				$H \rightarrow$	
vestigator: Brian Fox, Jared Edwards	DETERMINATION			100		U = X	
		YES				\	
o Normal Circumstances exist on the	F	NO	- <b>]</b>	t - 17			-
the site significantly disturbed (Atypic	ar Situation):	- NO	1			1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
the area a potential Problem Area?		YES		2 Ta		1	
ydrophytic Vegetation Present? Vetland Hydrology Present?	•	YES					统法的
* **	ŀ	YES		17.5			
tydric Soils Present?		123	2 2 E		<b>医</b>		
s this Sampling Point Within a Wetk	ind?	YES		- A			
temarks:							
			VEGETATION				
Dominant Plant Species		Indicator		Dominant F	Plant Species	Stratum	Indicator
1 Acer rubrum	TREE	FAC	9 10			1	
2 Carex frankii	HERB	OBL OBL	!U				
Polygonum hydropiperoides     Sambucus canadensis	HER8 SHRUB	FACW-	12				
5. Ulmus americana	TREE	FACW-	13				
6. Aster dumosis	HERB	FAC	14			1	
7. Acer negundo	TREE	FAC+	15				
B. Percent of Dominant Species that are 0			16				_
	····		HYDROLOGY	<u></u>	Hydroph	ytic Vegetation	Present? YE
rimary Indicators	Secondary Indic	cators (2 or more		:	Field Observations:		
Inungated		Root Channels in U			Depth of Surface Water.	N/O	
Saturated in Upper 12 Inches	X Water-Stail		7.1		Depth to Water in Pit:	N/O	
Water Marks	Local Soil 5	Survey Data			Depth to Saturated Soil	N/O _	
X Drift Lines	FAC-Neutr	al Test			Recorded Data (Describe in I	Remarks)?	
Sediment Deposits	Other (exp	lain in Remarks)			Stream, Lake, or Tide Gauge:	N/A	
Drainage Patterns in Wetlands	None				Aenal Photographs.	N/A	
NoneRemarks:					Other	N/A	
					Wolland Budeale	nav Present ar Ir	dicated? VE
*			SOILS		Wetland Hydrok	gy Present or Ir	idicated? YE
Map Unit Name. Urban Land - U	darthent Complex		SOILS		Drainage Class:		ndicated? YE
Тахопоту					Drainage Class: Field Observations Confirm Ma	apped Type?	
Taxonomy Depth (in.)   Horizon   Matrix Color	(Munsell Moist)	Mottle Cold	SOILS or (Abundance/C	entrast)	Drainage Class: Field Observations Confirm Ma	ipped Type?	
Taxonomy Depth (in.)   Horizon   Matrix Color 0-2" Organi	(Munsell Moist) c Material		or (Abundance/Co		Drainage Class: Field Observations Confirm Ma Texture, Structure Organic	apped Type?  e. Concretions,  Material	
Taxonomy	(Munsell Moist)				Drainage Class: Field Observations Confirm Me Texture: Structure Organic Silty	ipped Type?	
Taxonomy   Depth (in.)   Horizon   Matrix Color   O.2"   Organi   2-7"   10   10	(Munsell Moist) c Material YR4/2		or (Abundance/Co		Drainage Class: Field Observations Confirm Me Texture: Structure Organic Silty	apped Type?  a. Concretions,  Material  r Clay	
Taxonomy   Depth (in.)   Horizon   Matrix Color   O-2"   Organi   10   7-12"   10   10   10   10   10   10   10   1	(Munsell Moist) c Material YR4/2	łOYF	or (Abundance/Co		Drainage Class: Field Observations Confirm Me Texture. Structure Organic Silty	ipped Type? o. Concretions, Material r Clay y Loam	
Taxonomy   Depth (in.)   Horizon   Matrix Color   O-2"   Organia   10   10   10   10   10   10   10   1	(Munsell Moist) ic Material YR4/2 YR4/4   Reducing 6	łOYF	or (Abundance/Ci		Drainage Class: Field Observations Confirm Me Texture: Structure Organic Silty	epped Type?  c, Concretions,  Material  Clay  y Loam	
Taxonomy   Depth (in.)   Horizon   Matrix Color   O.2"   Organi   10   10   10   10   10   10   10   1	(Munsell Moist) ic Material YR4/2 YR4/4 Reducing (	+0YF	or (Abundance/Ci		Drainage Class: Field Observations Confirm Me Texture. Structure Organic Silty Sand	epped Type?  c, Concretions,  Material  Clay  y Loam	
Taxonomy   Depth (in.)   Horizon   Matrix Color   Organi   2-7"   10   10   10   10   10   10   10   1	(Munsell Moist) c Material YR4/2 YR4/4  Reducing ( X Gleyed or X Concretion	+0YF Conditions Low-Chroma Colors	or (Abundance/Ci	t)	Drainage Class: Field Observations Confirm Ms Texture, Structure Organic Sand  Organic Streaking in Sandy So	epped Type?  c, Concretions,  Material  Clay  y Loam	
Taxonomy   Depth (in.)   Horizon   Matrix Color   O-2"   Organi   10   10   10   10   10   10   10   1	(Munsell Moist) c Material YR4/2 YR4/4  Reducing ( X Gleyed or X Concretion	+0YF Conditions Low-Chroma Colors	or (Abundance/Ci	t)	Drainage Class: Field Observations Confirm Ma Texture, Structure Organic Salty Sand  Organic Streaking in Sandy Sc Listed on Local / National Hydi Other (Explain in Remarks)	epped Type?  c, Concretions,  Material  Clay  y Loam	
Taxonomy   Depth (in.)   Horizon   Matrix Color   Organi   2-7"   10   10	(Munsell Moist) c Material YR4/2 YR4/4  Reducing ( X Gleyed or X Concretion	+0YF Conditions Low-Chroma Colors	or (Abundance/Ci	t)	Drainage Class: Field Observations Confirm Ma Texture, Structure Organic Salty Sand  Organic Streaking in Sandy Sc Listed on Local / National Hydi Other (Explain in Remarks)	epped Type?  c, Concretions,  Material  Clay  y Loam	

	ROU		ND DETERMINATION		
SAMPLING STATE	ON INCORPATE		Wetlands Delineation Mar	udi)	The State Class
		ect ID:			<b>1</b>
Plot ID: WAS-21 Location: Proposed Landfill Area		nunity ID:			diam'r.
Location: Proposed Landfill Area Project/Site: Cane Run Landfill Project		7/28/09			
Owner E-ON/LG&E		ly Jefferson			
Investigator: Brian Fox, Jared Edwards		Kentucky	3	1	
	TERMINATION			a la	
Do Normal Circumstances exist on the sit	e?	YES			
is the site significantly disturbed (Atypical	-	NO	200		
is the area a potential Problem Area?		ŃΟ			
Hydrophytic Vegetation Present?		NO			
Wetland Hydrology Present?	1	NO			沙学","是不是一个
Hydric Soils Present?		NO	12.77	1	
is this Sampling Point Within a Wellan	d? [	NO			
Remarks:					
		<del></del>	VEGETATION	24.0	
Dominant Plant Species	Stratum	Indicator		ant Plant Species	Stratum Indicator
1 Acer rubrum	TREE	FAC	9. Rubus alleghen		SHRUB FACU-
2 Lonicera japonica	VINE	FAC-	10. Phytolacca ame		HERB FACU+
<ol> <li>Polygonum hydropiperoides</li> </ol>	HERB	QBL	11. Ageratina altiss	una	HERB FACU-
4 Sambucus canadensis	SHRUB	FACW	12.		
5 Lonicera maackii	SHRUB	F 6.31.1	13 Lat		1
5 Fraxinus americana	HERB	FACU FAC+	15		1
7 Acer negundo	TREE	FACU-	16		]
B Robinia pseudoacacia Percent of Dominant Species that are OF					<u> </u>
Remarks:		<b>*</b>		Нуд	rophytic Vegetation Present? NO
			HYDROLOGY		
Primary Indicators	Secondary India			Field Observations:	
Inundated		cot Channels in	Upper 12 in	Depth of Surface Water:	N/O
Saturated in Upper 12 inches		ned Leaves		Depth to Water in Pit	N/O
Water Marks		Survey Data		Depth to Saturated Soil	N/O
Drift Lines	FAC-Neutr			Recorded Data (Describe	
Sediment Deposits		ain in Remarks	1	Stream, Lake, or Tide Gau Aerial Photographs:	DE NIA
Drainage Patterns in Wetlands	X None			Other	N/A
X None Remarks;				Other	NS.
				Welland Hv	drology Present or Indicated? NO
			SOILS	1	
Man Lind Name - Ushon Land Lide	ndheni Compley	··		Drainage Class	
Map Unit Name Urban Land - Udo Taxonomy:	ATTION COMPACY			Field Observations Confirm	п Марреф Түре?
Depth (in.) Horizon Matrix Color (M	(unsell Moist)	Mottle Co	for (Abundance/Contrast		ture, Concretions, etc.
	R4/6				Člay toam
Hydric Soil Indicators:					-
Histosol	Reducing			Organic Streaking in Sand	
Histic Epipedon		Low-Chroma Co	olors	Listed on Local / National	
Sulfidic Odor	Concretion			Other (Explain in Remarks	\$)
Aquic Moisture Regime	High Orga	nic Content In S	urface of Sandy Soils	X None	<del></del>
Remarks:					
				<u> </u>	Hydric Soils Present? NO

#### ROUTINE WETLAND DETERMINATION DATA FORM (1987 COE Wetlands Delineation Manual SAMPLING STATION INFORMATION Transact ID: WAS-22 Plot (D: Community ID Date: 7/28/09 Proposed Landfill Area Location Project/Site Cane Run Landfill Project County: Jefferson Owner E-ON/LG&E State: Kentucky Investigator Brian Fox, Jared Edwards WETLAND DETERMINATION Do Normal Circumstances exist on the site? YES NO is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? NO Hydrophytic Vegetation Present? YES YES Wetland Hydrology Present? YES Hydric Soils Present? is this Sampling Point Within a Wetland? YES Remarks: VEGETATION Stratum Indicator Dominant Plant Species Dominant Plant Species Stratum Indicator Acer rubrum TREE FAC 2 Acer negundo TREE FAC+ 10. 11. 12 5 13 14 6 15 Percent of Dominant Species that are OBL\_FACW or FAC (excluding FAC 100% Remarks: Hydrophytic Vegetation Present? YES HYDROLOGY Secondary Indicators (2 or more required) Field Observations Primary Indicators Depth of Surface Water N/O Inundated Oxidized Root Channels in Upper 12 In N/O Depth to Water in Pit Saturated in Upper 12 Inches Water-Stained Leaves N/O Local Soil Survey Data Depth to Saturated Soil Water Marks Recorded Data (Describe In Remarks)? FAC-Neutral Test Drift Lines Stream, Lake, or Tide Gauge N/A Other (explain in Remarks) Sediment Deposits Ν/A Aerial Photographs: Drainage Patterns in Wellands None N/A Other None Remarks: Wetland Hydrology Present or Indicated? YES SOILS Urban Land - Udorthent Complex Drainage Class Map Unit Name: Field Observations Confirm Mapped Type? Taxonomy Depth (in.) Horizon Matrix Color (Munsell Moist) Mottle Color (Abundance/Contrast) Texture, Structure, Concretions, etc. Organic Material Organic Material 0-2" Siffy Clay 10YR5/2 10YR4/6 (Many/Faint) 2-5" Silt loam 10YR4/4 5-12" Hydric Soll Indicators: Organic Streaking in Sandy Soils Reducing Conditions Histosol Listed on Local / National Hydric Soils List Histic Epipedon X Gleyed or Low-Chroma Colors Other (Explain in Remarks) Concretions Sulfidic Odor None Aquic Moisture Regime High Organic Content in Surface of Sandy Solls Remarks: Hydric Soils Present? YES

		(1987 COS		RMINATION DA elineation Manua		
SAMPLING STATION						
ot ID WAS-23		ect ID				
cation Proposed Landfill Area		nunity ID	—— <u> </u>			
oject/Site: Cane Run Landfill Project		7/28/09	<del></del>			1720
wher: E-ON/LG8E		ty: Jefferson : Kentucky		1 4		
vestigator: Brian Fox, Jared Edwards		. Nemiduky				
WETLAND DETE	KNIIVATION	VES I				
Normal Circumstances exist on the site?		YES			AL .	
the site significantly disturbed (Atypical Situ	uation) <sup>2</sup>	NO				
the area a potential Problem Area?		NO				
ydrophytic Vegetation Present?	L	YES				
etland Hydrology Present?	L	YES			T	
ydric Sails Present?		YES				7 <del>-</del> 1
this Sampling Point Within a Wetland?		YES »			1	
emarks:			,			
			VEGETA	TION		9-18
Dominant Plant Species	Stratum	Indicator		Dominani	Plant Species	Stratum Indica
1. Impatiens capensis	HER8	FACW		llmus americana		TREE FAC
2. Toxicodendron radicans	HERB	FAC	10. L	ysımachia nummı	ilana	HERB OB
3. Boehmeria cylindrica	HERB	FACW+	11.			
4. Palygonum hydripiperoides	HERB	OBL	12.			
5. Polygonum pensylvanicum	HERB	FACW	13			
6. Acer rubrum	TREE	FAC	14			
7. Quercus rubra	TREE	FACU-	15			
8 Liquidambar styraciflua	TREE	FAC	16			
ercent of Dominant Species that are OBL, i	FACW or FAC			0%		
ercent of Dominant Species that are OBL, i	FACW or FAC		C-) <u>s</u>		Hydrop	phytic Vegetalion Present?
ercent of Dominant Species that are OBL, it semarks:		(excluding FA	C-) 9	ŌĠŸ		ohytic Vegetalion Present?
ercent of Dominant Species that are OBL, itemarks:	ondary Indic	(excluding FA	C-) 9  HYDROL pre required)	ŌĠŸ	Field Observations:	4
ercent of Dominant Species that are OBL, is emarks:  rimary Indicators Sec	ondary Indic	(excluding FA	C-) 9  HYDROL pre required)	ŌĠŸ	Field Observations: Depth of Surface Water:	N/O
ercent of Dominant Species that are OBL, is emarks:  rimary Indicators Sec Inundated Saturated in Upper 12 Inches X	ondary Indic Oxidized Ro Water-Stain	excluding FA	C-) 9  HYDROL pre required)	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit:	N/O N/O
ercent of Dominant Species that are OBL, is emarks:  rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks	ondary Indic Oxidized Ro Water-Stain Local Soil S	ators (2 or mo bot Channels in ned Leaves Survey Data	C-) 9  HYDROL pre required)	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.	NIO NIO NIO
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks  Times Value Control of the Control	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	C-) 9 HYDROL ore required) 1 Upper 12 in	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in	N/O N/O N/O Remarks)?
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks Drift Lines Sediment Deposits	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (expla	ators (2 or mo bot Channels in ned Leaves Survey Data	C-) 9 HYDROL ore required) 1 Upper 12 in	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge	N/O N/O N/O Remarks)?
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks Drift Lines Sediment Deposits	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	C-) 9 HYDROL ore required) 1 Upper 12 in	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs:	NIO NIO NIO Remarks)? NIA NIA
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks Torift Lines Sediment Deposits X Drainage Patterns in Wetlands None	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (expla	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	C-) 9 HYDROL ore required) 1 Upper 12 in	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge	N/O N/O N/O Remarks)?
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drift Lines Sediment Deposits X Dreinage Patterns in Wetlands None	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (expla	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	C-) 9 HYDROL ore required) 1 Upper 12 in	ŌĠŸ	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other	N/O N/O N/O N/O Remarksj? N/A N/A N/A
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks Vorift Lines Sediment Deposits X Drainage Patterns in Wetlands None	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (expla	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	HYDROL re required) 1 Upper 12 in	ÖĞY	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other	NIO NIO NIO Remarks)? NIA NIA
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drift Lines Sediment Deposits X Drainage Patterns in Wellands None Itemarks:	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (expla	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	C-) 9 HYDROL ore required) 1 Upper 12 in	ÖĞY	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other Wetland Hydro	N/O N/O N/O N/O Remarksj? N/A N/A N/A
Primary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drift Lines Sediment Deposits X Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Urban Land - Udorthe	ondary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (expla	ators (2 or mo bot Channels in led Leaves Survey Data al Tes!	HYDROL re required) 1 Upper 12 in	ÖĞY	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other	N/O N/O N/O Remarks)? N/A N/A N/A
rimary Indicators Sec Inundated Saturated in Upper 12 Inches Water Marks X Drift Lines Sediment Deposits X Dreinage Patterns in Wetlands None termarks:  Map Unit Name: Urban Land - Udorthe Taxonomy:	condary Indic Oxidized Ro Water-Stain Local Soil S FAC-Neutra Other (explanta None	ators (2 or mo oot Channels in ned Leaves survey Data al Test ain in Remarks	HYDROL  re required)  n Upper 12 in	.OGY	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.  Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm N	N/O N/O N/O Remarks)? N/A N/A N/A
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drift Lines Sediment Deposits X Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Depth (In.) Horizon Matrix Color (Muni-	condary Indic Oxidized Ri Water-Stain Local Soil S FAC-Neutre Other (explain) None	ators (2 or mo oot Channels in ned Leaves survey Data al Test ain in Remarks	HYDROL  re required)  n Upper 12 in	ÖĞY	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Notes that the structure of th	N/O N/O N/O Remarks)? N/A N/A N/A N/A
rimary Indicators Sec Inundated Saturated in Upper 12 Inches Water Marks X Drift Lines Sediment Deposits X Dreinage Patterns in Wetlands None termarks:  Map Unit Name: Urban Land - Udorthe Taxonomy:	ondary Indic Oxidized Ro Water-Stain Lecal Soil S FAC-Neutre Other (expla None  ent Complex sell Moist) erial	ators (2 or mo pot Channets in red Leaves Survey Data all Test ain in Remarks	HYDROL  re required)  n Upper 12 in	.S	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro Drainage Class. Field Observations Confirm N Texture, Structure Organ	N/O N/O N/O N/O Remarksj? N/A N/A N/A N/A logy Present or Indicated?
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drait Lines Sediment Deposits X Drainage Patterns in Wellands None Remarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Dapth (In.) Horizon Matrix Color (Munitation) 0-2" Organic Mat 10YRSr1	ondary Indic Oxidized Ro Water-Stain Lecal Soil S FAC-Neutre Other (expla None  ent Complex sell Moist) erial	ators (2 or mo pot Channets in red Leaves Survey Data all Test ain in Remarks	HYDROL re required) n Upper 12 in	.S	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.  Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Confirm Machi	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? reped Type? re, Concretions, etc. ic Material ty Clay
Percent of Domlinant Species that are OBL, if Remarks:  Primary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks  X Drift Lines Sediment Deposits  X Drainage Patterns in Wellands None Remarks:  Map Unit Name: Urban Land - Udorthe Taxonomy:  Depth (In.) Horizon Matrix Color (Munication) Organic Materials (Marks)	ondary Indic Oxidized Ro Water-Stain Lecal Soil S FAC-Neutre Other (expla None  ent Complex sell Moist) erial	ators (2 or mo pol Channels in red Leaves Survey Data all Test ain in Remarks	HYDROL re required) n Upper 12 in	.S	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.  Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Stream, Structure, Stru	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay
Percent of Domlinant Species that are OBL, if Remarks:  Primary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks  X Drift Lines Sediment Deposits None Remarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Depth (In.) Horizon Matrix Color (Mundators)	condary Indicional Condition of the Complex sell Molst)  Reducing Conditions of the Complex sell Molst)  Reducing Conditions of the Complex sell Molst)	ators (2 or mo pol Channels in red Leaves Survey Data all Test ain in Remarks	HYDROL re required) 1 Upper 12 in SOIL FOR (Abunda	.S	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.  Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Confirm Machi	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay
Primary Indicators Inundated Saturated in Upper 12 Inches Water Marks X Drift Lines Sediment Deposits X Drainage Patterns in Wetlands None Remarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Depth (In.) Horizon Matrix Color (Municators) 10 PR Sr1  Hydric Soil Indicators: Histosoi Histic Epipedon X	condary Indicional Condition of the Complex sell Molst)  Reducing Conditions of the Complex sell Molst)  Reducing Conditions of the Complex sell Molst)	ators (2 or mo oot Channels in red Leaves survey Data al Test ain in Remarks Mottle Co	HYDROL re required) 1 Upper 12 in SOIL FOR (Abunda	.S	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.  Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Stream, Structure, Stru	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay
rimary Indicators   Sec   Inundated   Saturated in Upper 12 Inches   Water Marks   X Drift Lines   Sediment Deposits   X Drainage Patterns in Wetlands   None   Remarks:  Map Unit Name: Urban Land - Udorthe   Taxonomy:   Depth (In.)   Horizon   Matrix Color (Municators)   1 DYR5/1    bydric Soil Indicators:   Histosol   Histic Epipedon   Suttidic Odor	condary Indic Oxidized Re Water-Stain Local Soil S FAC-Neutra Other (explain None  ent Complex sell Molst) erial  Reducing C Gleyed or L Concretion	ators (2 or monoton Channels in the Leaves Survey Data at Test ain in Remarks  Mottle Co	HYDROL THYDROL	S Ince/Contrast) Oistinct)	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil.  Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Confirm Machi	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drift Lines Sediment Deposits X Drainage Patterns in Wetlands None ternarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Dapth (In.) Horizon Matrix Color (Municators) O-2" Organic Matrix Color (Municators) Indicators: Histosol Histic Epipedon X Sulfidic Odor Aquic Molsture Regime	condary Indic Oxidized Rc Water-Stain Local Soil S FAC-Neutra Other (explain None  ent Complex sell Molst) erial  Reducing C Gleyed or L Concretion:	ators (2 or mo oot Channels in red Leaves survey Data al Test ain in Remarks Mottle Co	HYDROL THYDROL	S Ince/Contrast) Oistinct)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Structure, Str	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay
rimary Indicators Sec Inundated Saturated in Upper 12 Inches X Water Marks X Drift Lines Sediment Deposits X Drainage Patterns in Wetlands None ternarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Depth (In.) Horizon Matrix Color (Municators: 10 YR5rl  lydric Soil Indicators: Institute of Institute	condary Indic Oxidized Rc Water-Stain Local Soil S FAC-Neutra Other (explain None  ent Complex sell Molst) erial  Reducing C Gleyed or L Concretion:	ators (2 or monoton Channels in the Leaves Survey Data at Test ain in Remarks  Mottle Co	HYDROL THYDROL	S Ince/Contrast) Oistinct)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Structure, Str	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay
rimary Indicators  rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks  X Drift Lines Sediment Deposits X Drainage Patterns in Wetlands None termarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Depth (In.) Horizon Matrix Color (Municators)  O-2" Organic Matrix Color (Municators)  Histosol Histosol Histocol Histocol Histocol Suttidic Odor	condary Indic Oxidized Rc Water-Stain Local Soil S FAC-Neutra Other (explain None  ent Complex sell Molst) erial  Reducing C Gleyed or L Concretion:	ators (2 or monoton Channels in the Leaves Survey Data at Test ain in Remarks  Mottle Co	HYDROL THYDROL	S Ince/Contrast) Oistinct)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil. Recorded Data (Describe in Stream, Lake or Tide Gauge Aerial Photographs: Other  Wetland Hydro  Drainage Class. Field Observations Confirm Machine Structure, Str	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A logy Present or Indicated? tapped Type? re, Concretions, etc. ic Material ty Clay

			Wetlands Delineation Man	ual)		
SAMPLING STATION			0.23		The same of	
ot ID WAS-24		sect ID:				
cation: Proposed Landfill Area		munity ID				
oject/Site: Cane Run Landfill Project		7/28/09		- 9	e 2	
wher: E-ON/LG&E vestigator: Brian Fox, Jared Edwards		nty Jefferson e. Kentucky			A	
Vestigator: Brian Fox, Jared Edwards WETLAND DETER			<del></del>			
Normal Circumstances exist on the site?	TRAILE	YES		<b>建工程 政治</b>	34 6	
the site significantly disturbed (Atypical Situ	-stico12	NO			- 4	
the area a potential Problem Area?	age courty r	NO	<u>ll</u>			
drophytic Vegetation Present?	_	NO		nt.		
etland Hydrology Present?		NO				
edno Soils Present?		YES		(F)		
dire solis Present.		153				
this Sampling Point Within a Wetland?	1	NO	:			
emarks:						
			VEGETATION			r
Dominant Plant Species	Stratum	Indicator		ant Plant Species	Stratum	Indicat
1. Acer rubrum	TREE	FAC	9 Toxicodendron r		VINE	FAC
2. Lonicera japonica	VINE	FAC-	10.			
3 Rubus allegheniensis	SHRUB	FACU-	11.			
4 Ageratina allissima	HERB	FACU-	12.		1	
5 Fraxinus americana	HERB	FACU	13.			]
6. Liquidambar styraciflua	TREE	FAC	14.			
7. Impatiens capensis	HERB	FACW	15.			
8 Parthenocissus quinquefolia	VINE	FACU	16			
ercent of Dominant Species that are OBL, F	ACW or FA	C (excluding FAI			<u>-</u>	
ercent of Dominant Species that are OBL, F	ACW or FA	C (excluding FA)	C-) 44%	Hydroph	nytic Vegetalion	Present?
ercent of Dominant Species that are OBL, F emarks:			C-) 44%  HYDROLDGY		nytic Vegetation	Present?
recent of Dominant Species that are OBL. Formarks:	ondary India	cators (2 or mo	C-) 44%  HYDROLOGY  re required)	Field Observations:		Present?
imary Indicators Sec.	ondary India	cators (2 or mo	C-) 44%  HYDROLOGY  re required)	Field Observations: Depth of Surface Water:	N/O	Present?
imary Indicators Secies (Inundated Saturated in Upper 12 Inches	ondary India Oxidized 5 Water-Stai	cators (2 or mo Root Channels In ned Leaves	C-) 44%  HYDROLOGY  re required)	Field Observations: Depth of Surface Water: Depth to Water in Pit:	N/O N/O	Present?
Imary Indicators Section Section Section 12 Inches Water Marks	ondary India Oxidized F Water-Stai Local Soil	cators (2 or mo Root Channels In ned Leaves Survey Data	C-) 44%  HYDROLOGY  re required)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil:	N/O N/O N/O	Present?
Imary Indicators Section Saturated in Upper 12 Inches Water Marks Drift Lines	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr	cators (2 or mo Root Channels in ned Leaves Survey Data al Test	C-) 44%  HYDROLOGY  re required)  Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in I	N/O N/O N/O	Present?
fmary Indicators Security Inches Water Marks  Water Marks  Drift Lines Sediment Deposits	ondary Indi Oxidized 5 Water-Stai Local Soil FAC-Neutr Other (exp	cators (2 or mo Root Channels In ned Leaves Survey Data	C-) 44%  HYDROLOGY  re required)  Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in I	N/O N/O N/O Remarks)?	Present?
imary Indicators Sec. Inundated In Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands	ondary Indi Oxidized 5 Water-Stai Local Soil FAC-Neutr Other (exp	cators (2 or mo Root Channels in ned Leaves Survey Data al Test	C-) 44%  HYDROLOGY  re required)  Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in I	N/O N/O N/O N/O Remarks)?	Present?
imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X X None	ondary Indi Oxidized 5 Water-Stai Local Soil FAC-Neutr Other (exp	cators (2 or mo Root Channels in ned Leaves Survey Data al Test	C-) 44%  HYDROLOGY  re required)  Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in It Stream, Lake, or Tide Gauge Aerial Photographs:	N/O N/O N/O Remarks)? N/A N/A	Present?
imary Indicators Section Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sedminage Patterns in Wellands X None Name OBL. F	ondary Indi Oxidized 5 Water-Stai Local Soil FAC-Neutr Other (exp	cators (2 or mo Root Channels in ned Leaves Survey Data al Test	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in It Stream, Lake, or Tide Gauge Aerial Photographs:	N/O N/O N/O Remarks)? N/A N/A	
imary Indicators Sec.  Imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X None Imarks:	ondary India Oxidized S Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo Root Channels in ned Leaves Survey Data al Test	C-) 44%  HYDROLOGY  re required)  Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in PTE. Depth to Saturated Soil: Recorded Data (Describe in the Stream, Lake, or Tide Gauge Aerial Photographs: Other.	N/O N/O N/O Remarks)? N/A N/A	
imary Indicators Sec.  Imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands X None Emarks:  Map Unit Name: Urban Land - Udorthe	ondary India Oxidized S Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo Root Channels in ned Leaves Survey Data al Test	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Saturated Soil: Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid	N/O N/O N/O Remarks]? N/A N/A N/A	
imary Indicators Sec. Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X None Imarks:	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp	cators (2 or mo toot Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil: Recorded Data (Describe in Itserm, Lake, or Tide Gauge Aerial Photographs: Other.  Wetland Hydrold Drainage Class: Field Observations Confirm Ma	N/O N/O N/O Remarks)? N/A N/A N/A	idicaled?]
Imary Indicators Section Indicators Section Indicators Section Indicators Section Indicators Seturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X None Indicators Indicato	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp	cators (2 or mo toot Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations:  Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in Itserm, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid Drainage Class: Field Observations Confirm Ma	N/O N/O N/O Remarks]? N/A N/A N/A	idicaled?]
imary Indicators Sec. Imary Indicators Sec. Inundated Inundated Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X None Imarks:  Map Unit Name: Urban Land - Udorthe axonomy: epth (In.) Horizon Matrix Color (Muntage 10-1")	ondary India Oxidized 5 Water-Stai Local Soil FAC-Neulr Other (exp None	cators (2 or mo toot Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe in It Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydrold Drainage Class: Field Observations Confirm Material Photographs Texture, Structure	N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
Imary Indicators Sec.  Imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands X None emarks:  Map Unit Name: Urban Land - Udorthe axonomy: lepth (In.) Horizon Matrix Color (Muno	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo toot Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Water in Pitt Depth to Saturated Soil Recorded Data (Describe in It Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid Drainage Class: Field Observations Confirm Material	N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
imary Indicators Sec.  Imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X None Imarks:  Imap Unit Name: Urban Land - Udorthe axonomy: epth (in.) Horizon Matrix Color (Mune 0-1" 1-4" 10YR4/4 4-12" 10YR4/6	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo Root Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Salurated Soil: Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroic  Drainage Class: Field Observations Confirm Material Confirm Mater	N/O N/O N/O N/O Remarks]? N/A N/A N/A Ogy Present or it	idicaled?]
imary Indicators Sec.  Imary Indicators Sec.  Inundated In Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands X None Imarks:  Map Unit Name: Urban Land - Udorthe axonomy: Epth (In.) Horizon Matrix Color (Munc	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo Root Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Salurated Soil: Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroic  Drainage Class: Field Observations Confirm Material Confirm Mater	N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
Imary Indicators Sec.  Imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands X X None  Imarks:  Map Unit Name: Urban Land - Udorthe axonomy:  Imarks:  Map Unit Name: Indicator (Muns Color (M	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo Root Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Salurated Soil: Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroic  Drainage Class: Field Observations Confirm Material Confirm Mater	N/O N/O N/O N/O Remarks]? N/A N/A N/A Ogy Present or it	idicaled?]
imary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Welfands X None emarks:  Map Unit Name: Urban Land - Udorthe faxonomy: Pot In.   Horizon   Matrix Color (Muns   Marks   Marks   Matrix Color (Muns   Marks   Marks   Matrix Color (Muns   Marks   Matrix Color (Muns   Marks   Matrix Color (Muns   Marks   Matrix Color (Muns   Matrix Col	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or mo Root Channels In ned Leaves Survey Data al Test Hain in Remarks	HYDROLOGY re required) Upper 12 in	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Salurated Soil: Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroic  Drainage Class: Field Observations Confirm Material Confirm Mater	N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
Imary Indicators Sec. Inundated Inun	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or more control of the con	HYDROLOGY re required) Upper 12 in  SOILS  lor (Abundance/Contrast)	Field Observations: Depth of Surface Water: Depth to Water in Pit Depth to Saturated Soil Recorded Data (Describe in I Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroic  Drainage Class: Field Observations Confirm Material C	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
rimary Indicators Sec.  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wellands X None emarks:  Map Unit Name: Urban Land - Udorthe Taxonomy: Depth (in.) Horizon Matrix Color (Muns O-1" 1-4" 10YR4/4 4-12" 10YR4/6 10YR6/2 ydric Soil Indicators: Histosol	ondary India Oxidized F Water-Stai Local Soil FAC-Neutr Other (exp None	cators (2 or monocot Channels In ned Leaves Survey Data ral Test Hain in Remarks  Mottle Co	HYDROLOGY re required) Upper 12 in  SOILS  lor (Abundance/Contrast)	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Saturated Soil Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid Drainage Class: Field Observations Confirm Mits Texture, Structure Organic Sity Sity Sity Sity	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?
### Appunit Name: Urban Land - Udorthe Faxonomy:    Depth (In.)   Horizon   Matrix Color (Munit 1-4"   10YR4/4   10YR4/6   12-16"   Histosol   Histosol   Histosol   Histosol   Matrix Epipedon   X   Matrix Epipedon   X   Matrix Color (Munit 1-4"   10YR4/6	ondary India Oxidized 5 Water-Stai Local Soil FAC-Neulr Other (exp None  India Complex Sell Moist)  Reducing Gleyed or Concretion	Sators (2 or mo Root Channels in ned Leaves Survey Data al Test Hain in Remarks Mottle Co	HYDROLOGY re required) Upper 12 in  SOILS  lor (Abundance/Contrast)	Field Observations: Depth of Surface Water: Depth to Surface Water: Depth to Salurated Soil: Recorded Data (Describe in Its Stream, Lake, or Tide Gauge Aerial Photographs: Other.  Wetland Hydroic  Drainage Class: Field Observations Confirm Material Photographs: Organic Sity Sity Sity Sity Sity Sity Sity Sity	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
rimary Indicators Section Indicators I	ondary India Oxidized 5 Water-Stai Local Soil FAC-Neulr Other (exp None  India Complex Sell Moist)  Reducing Gleyed or Concretion	Sators (2 or mo Root Channels in ned Leaves Survey Data al Test Hain in Remarks Mottle Co	HYDROLOGY re required) Upper 12 in  SOiLS  lor (Abundance/Contrast)  R4/6 (many, distinct)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe In It Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid  Drainage Class: Field Observations Confirm Mit Texture, Structure Organic Softly Silty  Organic Streaking in Sandy So Listed on Local / National Hydroid Other (Explain in Remarks)	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?
imary Indicators Section Indicators:    App Unit Name: Urban Land - Udother Indicators Indica	ondary India Oxidized 5 Water-Stai Local Soil FAC-Neulr Other (exp None  India Complex Sell Moist)  Reducing Gleyed or Concretion	Sators (2 or mo Root Channels in ned Leaves Survey Data al Test Hain in Remarks Mottle Co	HYDROLOGY re required) Upper 12 in  SOiLS  lor (Abundance/Contrast)  R4/6 (many, distinct)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe In It Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid  Drainage Class: Field Observations Confirm Mit Texture, Structure Organic Softly Silty  Organic Streaking in Sandy So Listed on Local / National Hydroid Other (Explain in Remarks)	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	idicaled?]
rimary Indicators   Seciliary Indicators   Sediment Deposits   Drainage Patterns in Wellands   X   None   Sediment Deposits   Sedimen	ondary India Oxidized 5 Water-Stai Local Soil FAC-Neulr Other (exp None  India Complex Sell Moist)  Reducing Gleyed or Concretion	Sators (2 or mo Root Channels in ned Leaves Survey Data al Test Hain in Remarks Mottle Co	HYDROLOGY re required) Upper 12 in  SOiLS  lor (Abundance/Contrast)  R4/6 (many, distinct)	Field Observations: Depth of Surface Water: Depth to Water in Pit: Depth to Saturated Soil Recorded Data (Describe In It Stream, Lake, or Tide Gauge Aerial Photographs: Other  Wetland Hydroid  Drainage Class: Field Observations Confirm Mit Texture, Structure Organic Softly Silty  Organic Streaking in Sandy So Listed on Local / National Hydroid Other (Explain in Remarks)	N/O N/O N/O N/O N/O Remarks)? N/A N/A N/A Ogy Present or in	etc.

			ND DETERMINATIO				
SAMPLING STA	TION INFOR		Wetlands Delineation N	viairual)			
Piot ID WAS-25	ATTOM INFOR	Transect ID.					
Location: Proposed Landfill Area		Community ID:	- · .			The State of Bell	
Project/Site: Cane Run Landfill Project		Date: 7/28/09		· Secretary			
Owner: E-ON/LG&E		County Jefferson					<b>1</b>
Investigator Brian Fox, Jared Edward		State: Kentucky		<b>-</b>			
	DETERMINA	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN		S	18 May 18 18 18 18 18 18 18 18 18 18 18 18 18	A TANK	
Do Normal Circumstances exist on the		YES				1 2 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Is the site significantly disturbed (Atype	cal Situation)?	NO NO					
Is the area a potential Problem Area?		YES		7			
Hydrophytic Vegetation Present? Wetland Hydrology Present?		YES		Хя. 			TACC.
Hydric Soils Present?		YES			The state of the s		
Hydric Solls Present?		1				A 100 CO	
is this Sampling Point Within a Wetl	and?	YES		1			
Remarks:				$p_{ij} = 3^{ij}$		<b>《大学》</b>	
THE INDIVIDUAL TO THE INDIVIDUAL THE			E 32 8	<u> </u>			
							1
					CANAL MASS.		
			VEGETATION			7	···
Dominant Plant Species					Plant Species	Stratum	Indicator
1 Carex grayı	HES		9. Liquidambar 10. Ulmus əmeri		nua	TREE	FACW-
2 Toxicodendron radicans	HE		10 Uimus əmeii 11.	cana		INCE	FACVY-
3 Boehmeria cylindrica 4 Fraxinus pennsyvanica	HE		12				
5 Aster dumosus	HE		13				
6 Campsis radicans	VIV		14				
7 Acer rubrum	TRI		15				
8 Populus delloides	TRE		16				
Percent of Dominant Species that are	OBL, FACW o	ir FAC <u>(excluding FA</u>	0-) 100%				
Remarks:							
					Hydrop	hytic Vegetation F	Present? YES
			HYDROLOGY				
Primary Indicators	Secondary	Indicators (2 or mor	re required)		Field Observations:		
X Inundated		zed Root Channels in			Depth of Surface Water	NIO	
Saturated in Upper 12 Inches	Water	r-Stained Leaves			Depth to Water in Pit	N/O	
Water Marks	Local	Soil Survey Data			Depth to Saturated Soil	N/O	
Drift Lines		Neutral Test			Recorded Data (Describe in		
Sediment Deposits		texplain in Remarks,	l		Stream, Lake, or Tide Gauge:		
Dramage Patterns in Wetlands	None				Aerial Photographs: N/A		
None	_				Other	N/A	
Remarks:							
					Wetland Hydrol	ogy Present or In	dicated? YES
		-	SOILS			-/	
Map Unit Name: Urban Land - U	Idortnent Com	plex		············	Drainage Class		
Taxonomy.			<u> </u>		Field Observations Confirm M	apped Type?	
Depth (In.) Horizon   Matrix Color	(Munsell Moi	ist) Mottle Co	lor (Abundance/Contra	ist)	Texture, Structur	e, Concretions,	etc.
0-16" 10	YR4/4						
Hydric Soil Indicators:					<del>-</del> -		
Histosol	Redu	cing Conditions			Organic Streaking in Sandy S	oils	_
Histic Epipedon		ed or Low-Chroma Co	lors		Listed on Local / National Hyd		
Sulfidic Odor		retions			Other (Explain in Remarks)		
Aquic Moisture Regime	High	Organic Content in S	urface of Sandy Soils		None		
Remarks:							
i							
1							
						Introduce & -11	Present? YES

		ROU		ND DETERMINATION		
				Wetlands Delineation Ma	nuar)	
	·	ATION INFORMATI				5-10-00 P
1 141 14	WAS-26		sect ID			4.00
	Proposed Landfill Area		munity ID:			C Same
	Cane Run Landfill Projec E-ON/LG&E		7/28/09 ity Jefferson		91.6	
	E-ON/LGGE Brian Fox, Jared Edward		: Kentucky			
investigator t		DETERMINATION	. REITHORY			
Da Marant Cir	rcumstances exist on the		YES			
				1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
	nificantly disturbed (Atyp	ical Situation),	NO		A CONTRACTOR OF THE PARTY OF TH	
	ootential Problem Area?		NO			7 4
	egetation Present?		YES			1 Buch
Wetland Hydri	ology Present?		YES			4 × 1
Hydric Soils P	resent?		YES		1 / A 1 / A	
is this Sampl	ling Point Within a Wet	tland? [	YES			3
Remarks:						
		- u- <del>- l</del> u		VEGETATION		
	Description Consider		ladiostas		nant Plant Species	Stratum Indicator
	Dominant Plant Specie		Indicator OBL	9. Toxicodendror		VINE FAC
i. Typha li		HERB			) (autoaris	41145
	a triacanthos	TREE	FAC:	10		
3 Juneus		HERB	FACW+	12.		
	s delfoides	TREE	FAC	13.		1 1
5 Açerrui			FAC	14		
1	cus canadensis	SHRUB	FACW-	15		
	ns capensis	HERB	FACW	16		
8 Apocyn	um androsaemifolium ominant Species that are	HERB	· (avaludos EA)			J
Primary India		Secondary Indic	ators (2 or mo		Hydroph Field Observations: Depth of Surface Water	ytic Vegetation Present? YES
	ed in Upper 12 Inches		ned Leaves	1 0 1 1 1 1 1 1	Depth to Water In Pit:	N/O
Water N			Survey Data		Depth to Saturated Soil	N/O
Drift Lin		FAC-Neutr	•		Recorded Data (Describe in R	
	ent Deposits		lain in Remarks	1	Stream, Lake, or Tide Gauge	N/A
	ge Patterns in Wetlands	None	ion in the mondo	<i>'</i>	Aerial Photographs.	NIA
None	Je randinis ili victianda	140.10			Other	N/A
Remarks:					jono	
					Wetland Hydrolo	gy Present or Indicated? YES
<del></del>				SOILS	\$ 3	
Man Usi k	ama' (phastard	Identent Complex		74.24	Drainage Class:	
Map Unit Na	sme. <u>Orban Land •</u>	Udortherit Complex			Drainage Class: Field Observations Confirm Ma	pped Type?:
Taxonomy Depth (In.)	Hatriy Colo	r (Munsell Moist)	Modia Co	lor (Abundance/Contras		Concretions etc.
D-16"	1	0YR6/2	Works 50	10YR4/6	,,	
Hydric Soil I	ndicators:					
	Histosol	Reducing			Organic Streaking in Sandy So	ils
	Histic Epipedon	X Gleyed or	Low-Chroma Co	olors	Listed on Local / National Hydr	ic Solls List
	Sulfidic Odor	Concretion			Other (Explain in Remarks)	
	Aquic Molsture Regime			iurface of Sandy Soils	None	
Remarks:	, ,	, <del></del>			<u> </u>	
H						Hydric Sails Present? YES

				Wetlands Defineation Ma	nual)		
	SAMPLING STAT	ION INFORMATION	ON	TANK THE RESERVE TO SERVE THE RESERVE THE		SAME SECTION	<b>3</b> 4
	VAS-27		ect 1D				
	roposed Landfill Area		nunity ID:				
	ane Run Landfill Project		7/28/09				- 6
wner E	-ON/LG&E		ty: Jefferson : Kentucky			and there was	30
vestigator t	Brian Fox, Jared Edwards		Kentucky			the first of the second	
		TERMINATION	YES			· ***	
	cumstances exist on the si		NO NO		A		
	micantly disturbed (Atypica	i Situation) r	NO		5.5		
	otential Problem Area?		YES			<b>*</b> ***	-2" (T).
	egetation Present?	-	YES				
	ology Present?	_	YES				
ydnc Soils P	resent?		TES		SCHOOL STATE		٠.
this Sampli	ing Point Within a Wetlar	id? [	YES				3
emarks:	· · · · · · · · · · · · · · · · · · ·		···	7.			
				VEGETATION	Topological Services	V. 5.	
	Cominant Plant Species	Stratum	Indicator		ant Plant Species	Stratum Ind	licator
	ns capensis	HERB	FACW	9.			
	endron radicans	VINE	FAC	10.			
3 Leersia		HERB	QBL	11			
	na attissima	HERB	FACU-	12.			1
	um pensylvanicum	HERB	FACW	13.		1 1	
6. Fraxinus	s pennsylvanica	TREE	FACW	14.			
	eria cylindrica	HERB	FACW+	15.			
8. Lysimac	hia nummularia	HERB	OBL	16 -1 88%			
Percent of Do Remarks:	minant Species that are O	BE FACIVED FAC	(excluding FAC	-) 0076			
						Hydrophytic Vegetation Prese	nt? YES
	4	4:		HYDROLOGY			
rimary India	cators	Secondary Indic			Field Observa		
X Inundat			oot Channels in t	Jpper 12 in	Depth of Surfac		
	ed in Upper 12 Inches	Water-Starr			Depth to Water		
M reteW			Survey Data		Depth to Satura		
Drift Lin		FAC-Neutra				(Describe in Remarks)?	
	nt Deposits		ain in Remarks)		Stream, Lake, o		
	je Paltems in Wellands	None			Aerial Photogra	phs: N/A N/A	
None					Other:	- NtW	
Remarks:							
						Vetland Hydrology Present or Indicate	ed? YES
				SOILS	<u> </u>		
Map Unit Na	ime: Urban Land - Ud	orthent Complex			Drainage Class		
Taxonomy:	Grader Emiry - Ob		<u>-</u>		Field Observation	ons Confirm Mapped Type?	
Depth (in.)	Horizon Matrix Color (	Munsell Moist)	Mottle Cold	or (Abundance/Contras	Tex	ture, Structure, Concretions, etc.	
0-8"	10Y	R4/4				Silly Clay	
8-16"		R6/1		10YR4/6		Sany Clay	
					\		
hadda O - m f		_				<del>-</del>	
Hydric Soil (		Deducies (	Conditions		Organic Street	ng in Sandy Soils	_
	Histosof	Reducing (		D.C.		ing in Santay Solis / National Hydric Solls List	
	Histic Epipedon		_ow-Chroma Col	O) S	Other (Explain		
	Sulfidic Odor	Concretion		dood of Conductority		ii naiidita)	
	Aquic Maisture Regime		aic Content in Su	riace of Sandy Soils	None		
emarks:							
					r <del></del>	Hydric Soils Prese	n[2] VF

		(1987 COE	ND DETERMINATIO Wettands Defineation N		= : ::/*		
SAMPLING STA	ATION INFORMAT	TION			.周.北极福里江	N <sup>T</sup> N	T 33
of ID: WAS-28		nsect ID			14 of 11 and 11	1. 1.2	
cation: Proposed Landfill Area		nmunity ID		- 100		175	
oject/Site. Cane Run Landfill Project		e 7/28/09		30.2	100 mm	1. 1. 1.	
wner: E-ON/LG&E		inty Jefferson				" 11 13	
vestigator: Brian Fox, Jared Edward	S ISTA	te: Kentucky		47			1
		YES	<del></del>			<del>-</del>	
<ul> <li>Normal Circumstances exist on the the site significantly disturbed (Atypic</li> </ul>		NO			10. T		
the area a potential Problem Area?	an Situation yr	NO.				3	
/drophylic Vegetation Present?		NO NO	<u></u>				
etland Hydrology Present?		NO	l	Fine			•
ydric Soils Present?		YES					
this Sampling Point Within a Wetl	and?	NO		Contract of the second			
emarks:							
			VEGETATION				1
Dominant Plant Species				Inant Plant	apecies	Stratum SHRUB	Indicate FAC-
1 Ageratina attissima	HERB	FACU- FAC-	9. Diospyros vir 10	ล้เบาลนส		annus	THU-
Lonicera japonica     Parthenocissus quinquefolia	VINE	FACU	11				
4 Lonicera maackii	VINE	FACU	12			1	
5 Toxicodendran radicans	VINE	FAC	13				
6 Acer saccharum	TREE	FACU-	14				
7 Ulmus americana	TREE	FACW-	15				
B Ligustrum sempervirens	SHRUB		16.				_
,	····		(IMPROLOGY		Hydroph	ytic Vegetation P	resent?
4	Viana da a la d	Latina (1 as base	HYDROLOGY			ytic Vegetation P	resent?
imary Indicators		Icators (2 or mor	e required)		eld Observations:		resent?
imary Indicators	Oxidized	Root Channels in	e required)	Dec	eld Observations: th of Surface Water	N/O	resent?
imary Indicators Inundated Saturated in Upper 12 Inches	Oxidized Water-Sta	Root Channels in sined Leaves	e required)	Dec	eld Observations: th of Surface Water Ih to Water in Pit.	N/O N/O	resent?
Inundated Saturated in Upper 12 Inches Water Marks	Oxidized   Water-Sta Local Soil	Root Channels in sined Leaves I Survey Data	e required)	Der Der Der	eld Observations: th of Surface Water th to Water in Pit. In to Saturated Soll	NIO NIO NIO	resent?
Inundated Saturated in Upper 12 Inches Water Marks Drift Lines	Oxidized Water-Sta Local Soil FAC-Neur	Root Channels in sined Leaves I Survey Data tral Test	e required) Upper 12 in	Dec Dec Dec Rec	eld Observations: th of Surface Water Ih to Water in Pit.	NIO NIO NIO	resent?
Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits	Oxidized Water-Sta Local Soil FAC-Neur	Root Channels in sined Leaves I Survey Data	e required) Upper 12 in	Dec Dec Dec Rec Stre	eld Observations: th of Surface Water th to Water in Pit. In to Saturated Soll orded Data (Describe in F	N/O N/O N/O Remarks)?	resent?
imary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Pattems in Wetlands	Oxidized Water-Sta Local Soil FAC-Neur Other (ex	Root Channels in sined Leaves I Survey Data tral Test	e required) Upper 12 in	Dec Dec Dec Rec Stre	old Observations:  th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in Fitam, Lake or Tide Gauge: al Photographs:	N/O N/O N/O Remarks)?	resent?
rimary Indicators Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None	Oxidized Water-Sta Local Soil FAC-Neur Other (ex	Root Channels in sined Leaves I Survey Data tral Test	e required) Upper 12 in	Der Der Der Rec Stre Aer	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs:	N/O N/O N/O Remarks)? N/A N/A N/A	**************************************
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None	Oxidized Water-Sta Local Soil FAC-Neur Other (ex	Root Channels in sined Leaves I Survey Data tral Test	e required) Upper 12 in	Der Der Der Rec Stre Aer	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs:	N/O N/O N/O Remarks)? N/A N/A	***************************************
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:	Oxidized Water-Ste Local Soil FAC-Neu Other (ex	Root Channels in ained Leaves I Survey Data tral Test puein in Remarks)	e required) Upper 12 in	Der Der Der Rec Stre Aer Oih	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs: er	N/O N/O N/O Remarks)? N/A N/A N/A	***************************************
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land - U	Oxidized Water-Sta Local Soil FAC-Neur Other (ex	Root Channels in ained Leaves I Survey Data tral Test puein in Remarks)	e required) Upper 12 in	Der Der Der Rec Stre Aer Onh	eld Observations:  th of Surface Water  th to Water in Pit  in to Saturated Soll  orded Data (Describe in F  am, Lake or Tide Gauge:  al Photographs:  er  Wetland Hydrolo	N/O N/O N/O Remarks)? N/A N/A N/A	
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land • U	Oxidized Water-Sta Local Soil FAC-Neu Other (ex) X None	Root Channels in ained Leaves Survey Data tral Test ppain in Remarks)	e required) Upper 12 in	Der Der Der Rec Stre Aer Oth	eld Observations: th of Surface Water th to Water in Pit. in to Saturated Soll orded Data (Describe in F am, Laxe or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class: d Observations Confirm Ma	N/O N/O N/O Remarks)? N/A N/A N/A	licated?
Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Pattems in Wetlands X None emarks:  Map Unit Name: Urban Land - U Exonomy: Pepth (in.)   Horizon   Matrix Color	Oxidized Water-Ste Local Soil FAC-Neu Other (ex	Root Channels in ained Leaves Survey Data tral Test ppain in Remarks)	e required) Upper 12 in	Der Der Der Rec Stre Aer Oth	old Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in Fi am, Lake or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class d Observations Confirm Ma Texture, Structure	N/O N/O N/O Remarks)? N/A N/A N/A	licated?
Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land • Uranomy: Depth (in.) Horizon Matrix Color 0-8" 10 8-12" 10	Oxidized Water-Sta Local Soil FAC-Neul Chher (ex) X None	Root Channels in sined Leaves Survey Data trail Test pien in Remarks)  Mottle Coli	e required) Upper 12 in	Der Der Der Rec Stre Aer Oth	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class: d Observations Confirm Ma Texture, Structura Silty	N/O N/O N/O Remarks)? N/A N/A N/A N/A Present or Independ Type?: A Concretions, e	licated?
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patierns in Wetlands X None emarks:  Map Unit Name: Urban Land • U Taxonomy: Depth (in.) Horizon Matrix Color 0-8" 10 8-12" 10	Oxidized Water-Ste Local Soil FAC-Neur Other (ex X None  Idonthent Complex (Munsell Moist) IYR5/4	Root Channels in sined Leaves Survey Data trail Test pien in Remarks)  Mottle Coli	e required) Upper 12 in SOILS or (Abundance/Contra	Der Der Der Rec Stre Aer Oth	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class: d Observations Confirm Ma Texture, Structura Silty	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A Ogy Present or Independent of Index opped Type?: c. Concretions, e	licated?
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patierns in Wetlands X None emarks:  Map Unit Name: Urban Land • U Taxonomy: Depth (in.) Horizon Matrix Color 0-8" 10 8-12" 10	Oxidized Water-Sta Local Soil FAC-Neur Other (ex X None    Mone   Mone	Root Channels in sined Leaves Survey Data trail Test pien in Remarks)  Mottle Coli	e required) Upper 12 in SOILS or (Abundance/Contra	Der Der Der Rec Stre Aer Oth Dra Fel	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class: d Observations Confirm Ma Texture, Structura Silty	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A ogy Present or Ind epped Type?: a. Concretions, e Clay Clay	licated?
Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land • Urbanomy: Depth (in.) Horizon Matrix Color 0-8" 10" 8-12" 10" 12-24" 10"	Oxidized Water-Ste Local Soil FAC-Neur Other (ex X None  Idorthent Complex (Munsell Moist) PR5/1 PR6/1	Root Channels in ained Leaves I Survey Data trail Test pien in Remarks)  Mottle Col-	e required) Upper 12 in  SOILS  or (Abundance/Contra R6/6 (many, distinct)	Der Der Der Rec Stre Aer Oih	eld Observations:  th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class: d Observations Confirm Ma Texture, Structure Silty Silty	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A Ogy Present or Ind	licated?
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land - U Taxonomy: Depth (in.) Horizon Matrix Color 0-8" 10 8-12" 10 12-24" 10  lydric Soli Indicators: Histosol Histic Epipedon Sulfidic Odor	Oxidized Water-Sta Local Soil FAC-Neur Other (ex X None  Idonthent Complex (Munsell Moist) IYR5/4 IYR7/1 IYR6/1	Root Channels in sined Leaves Survey Data trail Test piain in Remarks)  Mottle College Mottle College Conditions r Low-Chroma Co	e required) Upper 12 in  SOILS  or (Abundance/Contra R6/6 (many, distinct)	Der Der Der Der Rec Stre Aer Oth Dra Frel	eld Observations: th of Surface Water th to Water in Pit. th to Saturated Soll orded Data (Describe in F am, Lake or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class: d Observations Confirm Ma Texture, Structura Silty Silty anic Streaking in Sandy So	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A Ogy Present or Ind	licated?
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land - U Taxonomy: Depth (in.) Horizon Matrix Color 0-8: 12" 10 12-24" 10  lydric Soil Indicators: Histosol Histic Epipedon	Oxidized Water-Sta Local Soil FAC-Neu Other (ex X None  Idorthent Complex (Munsell Moist) YR5/4 YR7/1 YR6/1  Reducing X Glayed of Concretio	Root Channels in ained Leaves Survey Data trail Test prein in Remarks)  Mottle Colling Conditions I Conditions I Cow-Chroma Coons	e required) Upper 12 in  SOILS  or (Abundance/Contra R6/6 (many, distinct)	Der Der Der Der Rec Stre Aer Oth Dra Frel	ith of Surface Water th to Surface Water th to Surface Water th to Saturated Soll orded Data (Describe in Fi am, Laxe or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class d Observations Confirm Ma Texture, Structure Sitty Sitty Sitty anic Streaking in Sandy Soled on Local / National Hydr er (Explain in Remarks)	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A Ogy Present or Ind	licated?
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None temarks:  Map Unit Name: Urban Land - U Taxonomy: Depth (in.) Horizon Matrix Color 0-8" 10 8-12" 10 12-24" 10  lydric Soli Indicators: Histosol Histic Epipedon Sulfidic Odor	Oxidized Water-Sta Local Soil FAC-Neu Other (ex X None  Idorthent Complex (Munsell Moist) YR5/4 YR7/1 YR6/1  Reducing X Glayed of Concretio	Root Channels in ained Leaves Survey Data trail Test prein in Remarks)  Mottle Colling Conditions I Conditions I Cow-Chroma Coons	e required) Upper 12 in  SOILS  or (Abundance/Contra R6/6 (many, distinct) R6/6 (many, distinct)	Der Der Der Der Rec Stree Aer Oth Dra Frel St)	ith of Surface Water th to Surface Water th to Surface Water th to Saturated Soll orded Data (Describe in Fi am, Laxe or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class d Observations Confirm Ma Texture, Structure Sitty Sitty Sitty anic Streaking in Sandy Soled on Local / National Hydr er (Explain in Remarks)	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A Ogy Present or Ind	licated?
Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None emarks:  Map Unit Name: Urban Land • U Taxonomy: Depth (in.) Horizon Matrix Color 0-8" 10 8-12" 10 12-24" 10  ydric Soli Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime	Oxidized Water-Sta Local Soil FAC-Neu Other (ex X None  Idorthent Complex (Munsell Moist) YR5/4 YR7/1 YR6/1  Reducing X Glayed of Concretio	Root Channels in ained Leaves Survey Data trail Test prein in Remarks)  Mottle Colling Conditions I Conditions I Cow-Chroma Coons	e required) Upper 12 in  SOILS  or (Abundance/Contra R6/6 (many, distinct) R6/6 (many, distinct)	Der Der Der Der Rec Stree Aer Oth Dra Frel St)	ith of Surface Water th to Surface Water th to Surface Water th to Saturated Soll orded Data (Describe in Fi am, Laxe or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class d Observations Confirm Ma Texture, Structure Sitty Sitty Sitty anic Streaking in Sandy Soled on Local / National Hydr er (Explain in Remarks)	N/O N/O N/O Remarks)? N/A N/A N/A N/A Proposition of Index Represent or Index Represent o	ticated?
rimary Indicators  Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands X None Itemarks:  Map Unit Name: Urban Land • U Taxonomy: Depth (in.) Horizon Matrix Color 0-8" 10" 8-12" 10" 12-24" 10"  lydric Soil Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime	Oxidized Water-Sta Local Soil FAC-Neu Other (ex X None  Idorthent Complex (Munsell Moist) YR5/4 YR7/1 YR6/1  Reducing X Glayed of Concretio	Root Channels in ained Leaves Survey Data trail Test prein in Remarks)  Mottle Colling Conditions I Conditions I Cow-Chroma Coons	e required) Upper 12 in  SOILS  or (Abundance/Contra R6/6 (many, distinct) R6/6 (many, distinct)	Der Der Der Der Rec Stree Aer Oth Dra Frel St)	ith of Surface Water th to Surface Water th to Surface Water th to Saturated Soll orded Data (Describe in Fi am, Laxe or Tide Gauge: al Photographs: er  Wetland Hydrolo inage Class d Observations Confirm Ma Texture, Structure Sitty Sitty Sitty anic Streaking in Sandy Soled on Local / National Hydr er (Explain in Remarks)	N/O N/O N/O N/O Remarks)? N/A N/A N/A N/A Ogy Present or Ind	icated?

SAMPLING ST. lot IO: WAS-29		Wetlands Delineation Manua	al)
ot ID: WAS-29	ATION INFORMATION	3. The second se	
	Transect ID		
cation: Proposed Landfill Area	Community ID		
oject/Site: Cane Run Landfill Projec			
wner: E-ON/LG&E	County Jefferson		
vestigator. Rita Davis, Jared Edward	is State: Kentucky		
WETLAND	DETERMINATION	A (A)	
Normal Circumstances exist on the	site? YES	THE PARTY OF THE P	
the site significantly disturbed (Atypi	cal Situation)? NO	10000000000000000000000000000000000000	
the area a potential Problem Area?	NO	7.00	
ydrophytic Vegetation Present?	YES		
etland Hydrology Present?	YES	2. 27	是自然的 经基本证明的 医神经病
veric Soils Present?	YES		
yoric Solls Present?			
this Sampling Point Within a Weti	and? YES		
emarks:			
			A CONTRACTOR OF THE SECOND
		VEGETATION	
Dominant Plant Species			nt Plant Species Stratum Indi
Equiselum hyemale	HERB FACW	<b>9</b> .	į į
<ol><li>Lonicera japonica</li></ol>	VINE FAC-	10	
<ol><li>Sassafras albidum</li></ol>	SHRUB   FACU-	11	
4, Lonicera maackii	SHRUB	12	
<ol><li>Acer saccharinum</li></ol>	TREE FACW	13	
<ol><li>Liquidambar styraciflua</li></ol>	TREE FAC	14.	
<ol> <li>Boehmeria cylindrica</li> </ol>	HERB FACW+	15	<u> </u>
Lysimachia nummulana	HERB OBL	16. 2-) <b>71</b> %	
	··········		Hydrophylic Vegetation Present
n d		HYDROLOGY	
rimary indicators	Secondary Indicators (2 or mor		Field Observations:
Inundated	Oxidized Root Channels in	Upper 12 in	Depth of Surface Water N/O
X Saturated in Upper 12 Inches	Water-Stained Leaves		Depth to Water in Pit: N/O
Water Marks	Local Soil Survey Data		Depth to Saturated Soil: N/O
Drift Lines	FAC-Neutral Test		Recorded Data (Describe in Remarks)?
Sediment Deposits	Other (explain in Remarks)	L	Stream, Lake, or Tide Gauge: N/A
Drainage Patterns in Wetlands	None		Aerial Photographs: N/A
None			Other N/A
lemarks:	<u> </u>		
			Wesland Hydrology Present or Indicated
		SOILS	vvesiand Hydrology Present of Indicated
	Jdorthent Complex		Drainage Class
Map Unit Name Urban Land - 1	·		Field Observations Confirm Mapped Type?
Тахолоту:	r (Munsell Moist) Mottle Co	lor (Abundance/Contrast)	Texture, Structure, Concretions, etc.
Taxonomy: Depth (In.)   Horizon   Matrix Color		YR4/6 (many, faint)	Silly Clay
Taxonomy: Depth (In.) Horizon Matrix Color 0-3" 10			Sifty Clay
Taxonomy: Depth (In.) Horizon Matrix Color 0-3" 10		'RS/8 (many_distinct)	
Taxonomy:     Depth (In.)   Horizon   Matrix Color		R5/8 (many distinct)	Silly Clay
Taxonomy: Depth (In.)   Horizon   Matrix Color 0-3"   16 3-10"   10 10-18"   10	10YR3/1 LOY	RS/8 (many distinct)	
Taxonomy:     Depth (In.)   Horizon   Matrix Color   0-3"   16   3-10"   16   10-18"   10   10   10   10   10   10   10   1	0YR3/1 LOY 0YR4/1	RS/8 (many distinct)	Sillý Clay
Taxonomy:   Depth (In.)   Horizon   Matrix Color   0-3"   16   3-10"   16   10-18"   10   10   10   10   10   10   10   1	OYR3/1 LOY OYR4/1  Reducing Conditions		Silfy Clay Organic Streaking in Sandy Solis
Taxonomy:   Depth (In.)   Horizon   Matrix Color   0-3"   16   3-10"   16   10-18"   16   Hydric Soil Indicators:   Histosol   Histic Epipedon	PR3/1 LDY DYR4/1  Reducing Conditions X Gleyed or Low-Chroma Co		Organic Streaking in Sandy Solis Listed on Local / National Hydric Soils List
Taxonomy:   Depth (In.)   Horizon   Matrix Color   0-3"	PR3/1 LDY DYR4/1  Reducing Conditions X Gleyed or Low-Chroma Co Concretions	elars	Organic Streaking in Sandy Solis Listed on Local / National Hydric Soils List Other (Explain in Remarks)
Taxonomy:   Depth (In.)   Horizon   Matrix Color   0-3"   16   3-10"   16   10-18"   16   Hydric Soil Indicators:   Histosol   Histic Epipedon	PR3/1 LDY DYR4/1  Reducing Conditions X Gleyed or Low-Chroma Co	elars	Organic Streaking in Sandy Solis Listed on Local / National Hydric Soils List

		ROL		ND DETERMINATIO		A FORM		
	SAMPLING S	TATION INFORMAT		, TOURS DEBRICATION IN				63.
Plot 10	WAS-30		seci ID					- 18 (C)
Location.	Proposed Landfill Area		munity ID:				at the	
	Cane Run Landfill Proje		8/13/09		47. 24		Sec. 5. 5	20 M
	E-ON/LG&E Rda Davis, Jared Edwa		nty: Jefferson e. Kentucky					
investigator:	1111	D DETERMINATION						
No Normal C	roumstances exist on th		YES					100
	nificantly disturbed (Aly		NO		×			
-	potential Problem Area?		NO		7.3			
Hydrophytic \	/egetation Present?		ОИ		- 3			
	rology Present?		ОИ			The state of the s		
Hydric Soils !	Present?		, NO		. 1			
ls this Samp	ling Point Within a We	tland?	NO					
Remarks:								A
	<del>-</del>			VEGETATION		AND GOVERNMENT OF	** > .) Z/M	
	Dominant Plant Specie	es Stratum	Indicator		ilnant P	lant Species	Stratum	Indicator
	əllegheniensis	SHRUB	FACU-	9.				
	ra japonic <b>a</b>	VINE	FAC-	10				
	mbar styraciflua rus virginiana	TREE TREE	FAC FACU	11 12			1	
	us virginiana a pseudoacacia	TREE	FACU-	13				
	o allissima	HERB	FACU	14				ļ
7.	•			15.				
B	ominant Species that are	OBL 5100054		16 C-i <b>1</b> 7%				
Remarks:					1	Hydropi	nytic Vegetation	Present? NO
				HYDROLOGY				
Primary Indi	cators	Secondary Indi	cators (2 or mo	re required)		Field Observations:		
Inunda			Root Channels in	Upper 12 in		Depth of Surface Water.	N/O	
	ted in Upper 12 Inches		ined Leaves			Depth to Water in Pit	N/O N/O	
Water		Local Soil FAC-Neuti	Survey Data			Depth to Saturated Soil.  Recorded Data (Describe in:		
Drift Li	nes ent Deposits		iai resi Ilain in Remarksi	١		Stream, Lake, or Tide Gauge:	NIA	
	ge Patterns in Wetlands		adir ((tricindino	,		Aerial Photographs:	N/A	
X None	<b>3</b>					Other	N/A	
Remarks:								
						Wetland Hydrol	ogy Present or In	ndicated? NO
		···	_	SOILS		<u> </u>		·-
Map Unit N	ame Urban Land -	Ugorthent Complex				Drainage Class		
Тахолоту:						Field Observations Confirm M	apped Type?	
Depth (In.)		or (Munsell Moist)	Mottle Co	lor (Abundance/Contra	ist)	Texture, Structur	<u>e, Concretions,</u> y Clay	etc.
0-19°		10YR5/6				Sill	<u>, ∨iał</u>	
		·				_		
Hydric Soil						Annual State Control	n.ile	-
	Histosol		Conditions	-1	-	Organic Streaking In Sandy Si Listed on Local / National Hyd		
	Histic Epipedon	Concretion	Low-Ciroma Co	פוטונ	-	Other (Explain in Remarks)	IIIG JONG EIST	
<del> </del>	Sulfidic Odor Aquic Moisture Regima			urface of Sandy Soils	х	None		
Remarks:	ludare moistore cream	- Industria	and deriters in O					
1							Hydric Soils	Present? NO

### **Jurisdictional Determination Forms**

- i. Perennial Streams/Wetlands
- ii. Intermittent Streams/Wetlands
- iii. Ephermeral Streams/Wetlands
- iv. Non-Jurisdictional Streams/Wetlands

i. Perennial Streams/Wetlands

#### BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 08/14/09

#### B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Stephen Hall

Project Engineer
Stantec Consulting Services, Inc.
350 Missouri Ave., Suite 100
Jeffersonville. IN 47130

- C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Louisville District Office
- D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: The E.ON-US is proposing to expand their landfill facilities for the purpose of storing coal combustion by-product (CCB) produced at the Cane Run Power Station. The project is located within the Mill Creek Cutoff watershed in Louisville, KY (38.181° N, 85.883 ° W).

# (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

DIFFERENT 3	1163)			
State: KY	County/parish	n/borough: Je	fferson	City: Louisville
Center coordin	ates of site (lat/	long in degre	e decimal forr	nat):
Lat. 38.181° N,	Long. 85.883 V	Ν.		
Universal Trar	sverse Mercato	or: 16		
Name of neare	st waterbody: N	fill Creek Cut	off	
Identify (estima	ite) amount of v	vaters in the i	eview area:	
Non-wetland	d waters: 4 stre	eam sections;	linear feet: 9,	929 ft.; width (ft)
and/or 9.888 a	cres.			
Cowardin C	lass: Riverine	Stream Flow	: Perennial	
Wetlands: 1	wetland 0.057	acres.	Cowardin Cla	ass: PSS1
Scrub-shrub				

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

### E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:
Field Determination. Date(s): August 14, 2009
1. The Corps of Engineers believes that there may be jurisdictional waters of the
United States on the subject site, and the permit applicant or other affected party
who requested this preliminary JD is hereby advised of his or her option to
request and obtain an approved jurisdictional determination (JD) for that site.

Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

<ul> <li>checked items should be included in case file and, where checked and</li> </ul>
requested, appropriately reference sources below):
Mana plane plate or plat submitted by or on behalf of the

Maps, plans, plots or plat submitted by or on behalf of the
applicant/consultant: .
☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
Attached: Wetland Analysis (WAS) Sheet, RBP sheet
Office concurs with data sheets/delineation report.
·

Office does not concur with dat	a sheets/delineation report.
☐ Data sheets prepared by the Corps:	
Corps navigable waters' study:	
☐ U.S. Geological Survey Hydrologic A ☐ USGS NHD data. ☐ USGS 8 and 12 digit HUC map ☐ U.S. Geological Survey map(s). Ci 1:24,000.	
USDA Natural Resources Conservation	tion Service Soil Survey. Citation:
☐ National wetlands inventory map(s).	Cite name: .
☐ State/Local wetland inventory map(s	s): .
☐ FEMA/FIRM maps: .	
100-year Floodplain Elevation is:	(National Geodectic Vertical Datum of
Previous determination(s). File no. a	and date of response letter:
Other information (please specify):	•
MPORTANT NOTE: The information re necessarily been verified by the Corps ater jurisdictional determinations.	
Signature and date of Regulatory Project Manager REQUIRED)	Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is improving to a signature in improved in the signature is improved in the signature in improved in the signature is improved in the signature.
REQUIRED)	(REQUIRED, unless obtaining the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
P-1	38.184475°	-85.880045°	Riverine	6,161 linear feet/ 8.486 acre	Non-section 10 non-tidal
P-2	38.180164°	-85.883238°	Riverine	1,455 linear feet/ 0.401 acre	Non-section 10 non-tidal
P-3	38.181654°	-85.879108°	Riverine	1,094 linear feet/ 0.301 acre	Non-section 10 non-tidal
P-4	38.182251°	-85.875217°	Riverine	1,219 linear feet/ 0.700 acre	Non-section 10 non-tidal
Wetland K	38.178134°	-85.87789°	PSS1	0.057 acre	Non-tidal wetland



#### BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL **DETERMINATION (JD):** 08/14/09

#### NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD: В. Stephen Hall Project Engineer

Stantec Consulting Services, Inc. 350 Missouri Ave., Suite 100 Jeffersonville, IN 47130

- DISTRICT OFFICE, FILE NAME, AND NUMBER: Louisville District Office
- D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: The E.ON-US is proposing to expand their landfill facilities for the purpose of storing coal combustion by-product (CCB) produced at the Cane Run Power Station. The project is located within the Mill Creek Cutoff watershed in Louisville, KY (38.181° N, 85.883° W).

### (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES A1

AT DIF	FERENT SIT	ES)				
		•	/borough: Jefi	ferson	City: Louisville	
Cen	ter coordinate	es of site (lat/l	ong in degree	decimal for	mat):	
Lat.	. 38.181° <b>N</b> , L	ong. 85.883 V	٧.			
Ųni	versal Trans\	erse Mercato	r: 16			
		•	lill Creek Cuto			
	• `	•	aters in the re			
			am sections; I	inear feet: 4	I,158 ft.; width (ft)	
	or 0.320 acre					
			Stream Flow:			
		etlands 1.598	acres.	Cowa	ardin Class:	
PEN	//1/PFO1					
Nam wate	•	er bodies on t	he site that ha	ve been ide	entified as Section	10
7	Γidal:					
١	Non-Tidal:				·	
E. F		FORMED FO	R SITE EVAL	.UATION (C	CHECK ALL THAT	

Office (Desk) Determination. Date:

- 1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.
- In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. and that in any administrative appeal, jurisdictional issues can be raised (see 33) C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

requested, appropriately reference sources below):	
Maps, plans, plots or plat submitted by or on behalf of the	
applicant/consultant:	.4
<ul> <li>☑ Data sheets prepared/submitted by or on behalf of the applicant/consultar</li> <li>Attached: Wetland Analysis (WAS) Sheet, RBP sheet</li> <li>☐ Office concurs with data sheets/delineation report.</li> <li>☐ Office does not concur with data sheets/delineation report.</li> </ul>	ıt.
☐ Data sheets prepared by the Corps: .	
Corps navigable waters' study:	
<ul> <li>U.S. Geological Survey Hydrologic Atlas:</li> <li>USGS NHD data.</li> <li>USGS 8 and 12 digit HUC maps.</li> <li>U.S. Geological Survey map(s). Cite scale &amp; quad name: Lanesville Qual 1:24,000.</li> </ul>	ıđ,
USDA Natural Resources Conservation Service Soil Survey. Citation:	
☐ National wetlands inventory map(s). Cite name: .	
State/Local wetland inventory map(s):	
☐ FEMA/FIRM maps: .	
100-year Floodplain Elevation is: (National Geodectic Vertical Datum 1929)	of
Previous determination(s). File no. and date of response letter:	
Other information (please specify):	
IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.	
Signature and date of Regulatory Project Manager (REQUIRED)  Signature and date of person requesting preliminary (REQUIRED, unless obtaining the signature is impracticable)	<b>)</b> JD

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
I-1	38.18204°	-85.884476°	Riverine	1,467 linear feet/ 0.135 acre	Non-section 10 non-tidal
I-2	38.182686°	-85.881343°	Riverine	916 linear feet/0.063 acre	Non-section 10 non-tidal
I-3	38.186017°	-85.880045°	Riverine	1775 linear feet/ 0.122 acre	Non-section 10 non-tidal
Wetland A	38.179968°	-85.879848°	PEM1	1.505 acre	Non-tidal wetland
Wetland L	38.181983°	-85.884405°	PFO1	0.093 acre	Non-tidal wetland

iii. Ephermeral Streams/Wetlands

#### BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 08/14/09

### B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Stephen Hall
Project Engineer
Stantec Consulting Services, Inc.

350 Missouri Ave., Suite 100

Jeffersonville, IN 47130

### C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Louisville District Office

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: The E.ON-US is proposing to expand their landfill facilities for the purpose of storing coal combustion by-product (CCB) produced at the Cane Run Power Station. The project is located within the Mill Creek Cutoff watershed in Louisville, KY (38.181° N, 85.883° W).

# (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: KY	County/parish/borough: Jefferson Cit	y: Louisville
Center co	ordinates of site (lat/long in degree decimal format)	):

Lat. 38.181° N, Long. 85.883 W. Universal Transverse Mercator: 16

Name of nearest waterbody: Mill Creek Cutoff

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 40 stream sections; linear feet: 9,638 ft.; width (ft) and/or 1.199 acres.

Cowardin Class: Riverine Stream Flow: Ephemeral

Wetlands: 3 wetlands 1.390 acres. Cowardin Class: PFO1

Forested

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

### E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

	Office	(Desk)	Determ	ination.	Date:

- □ Field Determination. Date(s): August 14, 2009
- 1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site.

Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of iurisdictional waters: (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case tile and, where checked and
requested, appropriately reference sources below):
Maps, plans, plots or plat submitted by or on behalf of the

applicant/consultant: .
☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant
Attached: Wetland Analysis (WAS) Sheet, RBP sheet
Office concurs with data sheets/delineation report.

Office does not concur with data shee	ts/delineation report.
☐ Data sheets prepared by the Corps: .	
Corps navigable waters' study:	
<ul> <li>□ U.S. Geological Survey Hydrologic Atlas:</li> <li>□ USGS NHD data.</li> <li>□ USGS 8 and 12 digit HUC maps.</li> <li>☑ U.S. Geological Survey map(s). Cite scale 1:24,000.</li> </ul>	e & quad name: Lanesville Quad,
☐ USDA Natural Resources Conservation Se	rvice Soil Survey. Citation:
☐ National wetlands inventory map(s). Cite n	ame: .
State/Local wetland inventory map(s):	
☐ FEMA/FIRM maps: .	
☐ 100-year Floodplain Elevation is: (Nati	ional Geodectic Vertical Datum of
	•
Previous determination(s). File no. and date	te of response letter:
Other information (please specify):	
MPORTANT NOTE: The information recorded necessarily been verified by the Corps and stater jurisdictional determinations.	
	0 . 1/1 .
REQUIRED)	Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
E-1a	38.180207°	-85.884296°	Riverine	846 linear feet/ 0.194 acre	Non-section 10 non-tidal
E-1	38.181668°	-85.884677°	Riverine	71 linear feet/ 0.016 acre	Non-section 10 non-tidal
E-2	38.181668°	-85.884677°	Riverine	57 linear feet/ 0.005 acre	Non-section 10 non-tidal
E-3	38.181974°	-85.884078°	Riverine	96 linear feet/ 0.022 acre	Non-section 10 non-tidal
E-4	38.181838°	-85.883035°	Riverine	543 linear feet/ 0.025 acre	Non-section 10 non-tidal
E-5	38.183566°	-85.883761°	Riverine	524 linear feet/ 0.024 acre	Non-section 10 non-tidal
E-6	38.183488°	-85.883853°	Riverine	32 linear feet/ 0.002 acre	Non-section 10 non-tidal
E-7	38.18173°	-85.88101°	Riverine	87 linear feet/ 0.016 acre	Non-section 10 non-tidal
E-8	38.182458°	-85.881819°	Riverine	96 linear feet/ 0.007 acre	Non-section 10 non-tidal
E-9	38.180807°	-85.880022°	Riverine	379 linear feet/ 0.044 acre	Non-section 10 non-tidal
E-10	38.181591°	-85.880542°	Riverine	413 linear feet/ 0.076 acre	Non-section 10 non-tidal
E-11	38.181063°	-85.879709°	Riverine	92 linear feet/ 0.013 acre	Non-section 10 non-tidal
E-12	38.180893°	-85.879386°	Riverine	402 linear feet/ 0.037 acre	Non-section 10 non-tidal
E-13	38.181017°	-85.879536°	Riverine	47 linear feet/ 0.002 acre	Non-section 10 non-tidal
E-14	38.180993°	-85.879391°	Riverine	59 linear feet/ 0.003 acre	Non-section 10 non-tidal
E-15	38.177877°	-85.877815°	Riverine	117 linear feet/ 0.005 acre	Non-section 10 non-tidal
E-16	38.180957°	-85.878511°	Riverine	974 linear feet/ 0.157 acre	Non-section 10 non-tidal
E-17	38.180499°	-85.878424°	Riverine	32 linear feet/ 0.002 acre	Non-section 10 non-tidal
E-18	38.180863°	-85.878296°	Riverine	525 linear feet/ 0.036 acre	Non-section 10 non-tidal
E-19	38.1862°	-85.879941°	Riverine	80 linear feet/ 0.011 acre	Non-section 10 non-tidal
E-20	38.186255°	-85.88061°	Riverine	240 linear feet/ 0.033 acre	Non-section 10 non-tidal

E-21	38.185786°	-85.881098°	Riverine	65 linear feet/ 0.009 acre	Non-section 10 non-tidal
E-22	38.185457°	-85.881526°	Riverine	104 linear feet/ 0.014 acre	Non-section 10 non-tidal
E-23	38.185092°	-85.882037°	Riverine	105 linear feet/ 0.014 acre	Non-section 10 non-tidal
E-24	38.184834°	-85.881626°	Riverine	42 linear feet/	Non-section 10
E-25	38.184725°	-85.88176°	Riverine	0.006 acre 31 linear feet/	non-tidal Non-section 10
E-26	38.183109°	-85.875742°	Riverine	0.004 acre 181 linear feet/	non-tidal Non-section 10
E-27	38.183738°	-85.876758°	Riverine	0.025 acre 499 linear feet/	non-tidal Non-section 10
E-28	38.183738°	-85.876888°	Riverine	0.069 acre 51 linear feet/	non-tidal Non-section 10
				0.007 acre 106 linear feet/	non-tidal Non-section 10
E-29	38.183544°	-85.876664°	Riverine	0.015 acre 84 linear feet/	non-tidal Non-section 10
E-30	38.183627°	-85.876371°	Riverine	0.012 acre	non-tidal
E-31	38.184282°	-85.87623°	Riverine	275 linear feet/ 0.076 acre	Non-section 10 non-tidal
E-32	38.184571°	-85.876127°	Riverine	205 linear feet/ 0.019 acre	Non-section 10 non-tidal
E-33	38.184731°	-85.876019°	Riverine	89 linear feet/ 0.008 acre	Non-section 10 non-tidal
E-34	38.185285°	-85.876848°	Riverine	475 linear feet/ 0.044 acre	Non-section 10 non-tidal
E-35	38.185125°	-85.876986°	Riverine	640 linear feet/ 0.059 acre	Non-section 10 non-tidal
E-36	38.183179°	-85.878409°	Riverine	403 linear feet/ 0.037 acre	Non-section 10 non-tidal
E-37	38.183111°	-85.878508°	Riverine	65 linear feet/ 0.005 acre	Non-section 10 non-tidal
E-38	38.182376°	-85.879696°	Riverine	471 linear feet/ 0.043 acre	Non-section 10 non-tidal
E-39	38.183304°	-85.879635°	Riverine	17 linear feet/ 0.002 acre	Non-section 10
E-40	38.182997°	-85.878353°	Riverine	20 linear feet/ 0.002 acre	Non-section 10
Wetland I	38.17864°	-85.87716°	PFO1	0.002 acre	Non-tidal
Wetland J	38.17864°	-85.87716°	PFO1	0.793 acre	wetland Non-tidal
Wetland K	38.17864°	-85.87716°	PFO1	0.174 acre	wetland Non-tidal
					wetland

iv. Non-Jurisdictional Streams/Wetlands

#### **BACKGROUND INFORMATION**

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 08/14/09

#### B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Stephen Hall Project Engineer Stantec Consulting Services, Inc.

350 Missouri Ave., Suite 100

Jeffersonville, IN 47130

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Louisville District Office

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: The E.ON-US is proposing to expand their landfill facilities for the purpose of storing coal combustion by-product (CCB) produced at the Cane Run Power Station. The project is located within the Mill Creek Cutoff watershed in Louisville, KY (38.181° N, 85.883 ° W).

### (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: KY County/parish/borough: Jefferson City: Louisville Center coordinates of site (lat/long in degree decimal format):

Lat. 38.181° N, Long. 85.883 W. Universal Transverse Mercator: 16

Name of nearest waterbody: Mill Creek Cutoff

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 2 stream sections; linear feet: 1,154 ft.; width (ft) and/or N/A acres.

Cowardin Class: N/A Stream Flow: Non-Jurisdictional

Wetlands: 7 wetlands 0.375 acres.

Cowardin Class: PEM1

Emergent

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

# E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Ш	Office (Desk) Determ	nination.	Date:	
$\boxtimes$	Field Determination.	Date(s):	August 14	2009

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site.

Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

<ul> <li>checked items should be included in case file and, where checked and</li> </ul>	
requested, appropriately reference sources below):	
☑ Maps, plans, plots or plat submitted by or on behalf of the	

applicant/consultant:
☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
Attached: Wetland Analysis (WAS) Sheet, RBP sheet
Office concurs with data sheets/delineation report

Office does not concur with data sheets	delineation report.
Data sheets prepared by the Corps:	
Corps navigable waters' study:	
<ul> <li>U.S. Geological Survey Hydrologic Atlas:</li> <li>USGS NHD data.</li> <li>USGS 8 and 12 digit HUC maps.</li> <li>☑ U.S. Geological Survey map(s). Cite scale 1:24,000.</li> </ul>	·
☐ USDA Natural Resources Conservation Serv	vice Soil Survey. Citation:
National wetlands inventory map(s). Cite na	me: .
☐ State/Local wetland inventory map(s): .	
☐ FEMA/FIRM maps: .	
☐ 100-year Floodplain Elevation is: (Nation 1929)	nal Geodectic Vertical Datum of
☐ Photographs: ☐ Aerial (Name & Date):	
or ☐ Other (Name & Date):	
Previous determination(s). File no. and date	of response letter:
Other information (please specify):	
iMPORTANT NOTE: The information recorded necessarily been verified by the Corps and should be included in the information of the corps and should be included in the information of the	
Regulatory Project Manager pe (REQUIRED) (REQUIRED)	ignature and date of erson requesting preliminary JD REQUIRED, unless obtaining e signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
NJ-1	38.181364°	-85.884319°	N/A	41 linear feet	Non-JD Stream
NJ-2	38.180049°	-85.879417°	N/A	1,113 linear feet	Non-JD Stream
Wetland B	38.178883°	-85.878426°	PEM1	0.135 acre	Non-JD Wetland
Wetland C	38.180983°	-85.882042	PEM1	0.057 acre	Non-JD Wetland
Wetland D	38.18113°	85.882013°	PEM1	0.004 acre	Non-JD Wetland
Wetland E	38.181295°	-85.884482°	PEM1	0.032 acre	Non-JD Wetland
Wetland F	38.180895°	-85.884588°	PEM1	0.111 acre	Non-JD Wetland
Wetland G	38.180643°	-85.884758°	PEM1	0.027 acre	Non-JD Wetland
Wetland N	38.17935°	-85.884356°	PEM1	0.009 acre	Non-JD Wetland

~4 m

**Compensatory Mitigation** 



#### MITIGATION STATEMENT E.ON-US/ LG&E CANE RUN POWER STATION PROPOSED LANDFILL PROJECT LOUISVILLE, JEFFERSON COUNTY, KENTUCKY

To mitigate for stream impacts incurred by the planned landfill project, E.ON-US/LG&E proposes payment to the Kentucky Department of Fish and Wildlife Resources In-Lieu Fee (ILF) Program. The ILF for impacted streams was calculated using the U.S. Army Corps of Engineers' Central Kentucky Stream Assessment Protocol at a cost of \$120 per debit (\$100/debit plus 20% for temporal loss. The total proposed payment into the ILF Program is \$304,740. See Table 5 for calculation details. Wetland impact (1.597 acre) will be mitigated by the purchase of mitigation credits at a 1:1 ratio from the PTRL Mitigation Bank in Nelson County, Kentucky.

Table 5. In-Lieu Fee Calculation Table

IN-LIEU FEE CALCULATION TABLES E.ON-US/LG&E Cane Run Power Station Proposed Landfill Project Louisville, Jefferson County, Kentucky

#### TABLE 5. IN-LIEU FÉE TABLE

4 (10 /5 ***********************************			Southern Court of Before Impact the decision of the southern of the second state of th						After imp			After impact				After impact					
mpact ID	JWUS <sup>1</sup> Stream ID	Stream Name	HUC 14 Boundary	Flow Regime or Cowardin Class	Watershed Area (acres)	RBP <sup>2</sup> ID	initial RBP <sup>1</sup> Score	initial Quality*	Impact Length (feet)	Average Area of Impact (acres)	Mitigation Ratio Multiplier	Deptr (1997	Predicted RPB score		Final Length			Balance (feat			
TREAM IN	PACT					##-70 TT #				est adaption p			- 3			1111	7 1 20	the second			
Landfill	E-1a	UT to Mill Creek Cutoff	5140101320050	Ephemeral	4.6	25	62	Poor	846	0.194	0.50	423						-42			
Landfill	E-1	UT to Mill Creek Cutoff	5140101320050	Ephemeral	0.2	26	62	Poor	71	0.016	0.50	36						-34			
Landfill	E-2	UT to Mill Creek Cutoff	5140101320050	Ephemeral	0,2	11	62	Poor	57	0.013	0,50	29						-2!			
Landfill	E-3	UT to Mill Creek Cutoff	5140101320050	Ephemeral	0.1	26	62	Poor	96	0.022	0.50	48						-4:			
Landfill	E-4	UT to Mill Creek Cutoff	5140101320050	Ephemeral	1.9	26	62	Poor	543	0.125	0.50	272						-27:			
Landfill	E-6	UT to Mill Creek Cutoff	5140101320050	Ephemeral	0.3	3	50	Poor	6	0.001	0.50	3						-			
Landfill	E-7	UT to Mill Creek Cutoff	5140101320050	Ephemeral	0,2	13	50	Poor	67	0.016	0.50	44						-4			
Landfill	E-9	UT to Garrison Ditch	5140101320050	Ephemeral	0.9	15	42	Poor	139	0.016	0.50	70						-71			
Landfill	<b>I-</b> 1	UT to Mill Creek Cutoff	5140101320050	Intermittent	21.9	11	62	Poor	1094	0.101	1.00	1094			-			-109			
Landfill	1-2	UT to Mill Creek Cutoff	5140101320050	Intermittent	14,3	12	62	Poor	523	0.036	1,00	523						-52			
		1.1.24						il Impact Total	1845	0.403			1,25				is debit)				
	al lilli da				rayballil			ıı impact Total	1617	0,137	1		.686		Jeu Fee I		t of Debit				
	- 33P-93 R							al Impact Total		0,000	1							r			
P. J. Day, 23:		aturan Straunyilana				1	STR	EAM TOTAL	3,462	0,540	Lanca and a			STR.	REAM IN-	LIEV FE	E TOTAL	\$304,74			

<sup>\*</sup> Stream quality is based upon the Rapid Bioassessment Protocol score. The stream quality classification is based on the scoring ranges for headwalar streams in the Bluegrass Region as defined in the Kentucky Division of Water's document, "Methods for Assessing Biological Integrity of Surface Waters in Kentucky",

1 Jurisdictional Waters of the United States

<sup>2</sup> Rapid Bioassessment Protocol

**Agency Correspondence** 

## Threatened and Endangered Species Correspondence

- i. Kentucky State Nature Preserves Commission
- ii. U.S. Fish and Wildlife Service
- iii. Kentucky Department of Fish and Wildlife Resources

Kentucky State Nature Preserves Commission

Steven L. Beshear Governor

Donald S. Dott, Jr.
Director



# Commonwealth of Kentucky Kentucky State Nature Preserves Commission 801 Schenkel Lane Frankfort, Kentucky 40601-1403 502-573-2886 Voice 502-573-2355 Fax

October 8, 2008

Michael Frank GAI Consultants, Inc. 625 Eden Park Drive, Suite 520 Baldwin Building Cincinnati, OH 45202

Data Request 09-037

Dear Mr. Frank:

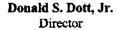
This letter is in response to your data request of October 7, 2008 for the E.ON U.S./LG&E Cane Run CCP Storage project. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur near the project area on the Lanesville and Louisville West USGS Quadrangles, as shown on the map provided. Please see the attached reports for more information, which reflect analysis of the project area with three buffers applied:

1-mile for all records - 3 records
5-mile for aquatic records - 17 records
5-mile for federally listed species - 7 records
10-mile for mammals and birds - 18 records

Kirtland's snake (Clonophis kirtlandii, KSNPC Threatened, federal species of management concern) formerly inhabited moist, grassy meadows and margins of wetlands in the southern and western portions of Jefferson County. Today the species persists in relict populations in minimally to moderately disturbed areas, mostly along stream drainages, but also in higher spots relatively far from streams. These snakes are regularly encountered in residential areas, mostly in grassy strips in floodplains, vacant lots, and similar sites where they find refuge beneath debris and in crayfish burrows. Disturbance, most notably heavy construction, in these habitats can potentially impact populations of the species.

Plethobasus cyphyus (Sheepnose, federal candidate, KSNPC endangered) may still persist in the Ohio River in the vicinity of this project, even though the vast majority of occurrences for aquatic organisms are from 1966 or earlier. This segment of the river has been severely impacted

Steven L. Beshear Governor





# Commonwealth of Kentucky Kentucky State Nature Preserves Commission 801 Schenkel Lane Frankfort, Kentucky 40601-1403 502-573-2886 Voice 502-573-2355 Fax

by pollutants from Louisville and upriver. Although river quality is improving many of these organisms apparently have been extirpated from the area.

Orconectes jeffersoni (Louisville crayfish, KSNPC endangered, USFWS Species of Management Concern) is globally ranked as critically imperiled because it is endemic to several drainages in urban areas of Jefferson, Bullitt and Oldham counties, Kentucky. Aquatic species in the area are sensitive to increased turbidity, sediment and other adverse influences on water quality. Our data are not sufficient to guarantee absence of endangered, threatened or sensitive species from the sites of proposed construction disturbance. We recommend that impacted streams be thoroughly surveyed by a qualified biologist prior to any in-stream disturbance.

Falco peregrinus (Peregrine Falcon, KSNPC endangered, federal species of management concern) typically nests on rocky cliffs, bluffs, or dirt banks. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites include tall buildings, bridges, rock quarries, and raised platforms.

Tyto alba (Barn Owl, KSNPC special concern) can be found in hollow trees, old buildings, barns, silos and other abandoned structures. Before demolition of existing structures, it should be determined that these birds are not present.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Kentucky State Nature Preserves Commission, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Data Manager (801 Schenkel Lane, Frankfort, KY, 40601. Phone: (502) 573-2886).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many Donald S. Dott, Jr. Director



Steven L. Beshear Governor

# Commonwealth of Kentucky Kentucky State Nature Preserves Commission 801 Schenkel Lane Frankfort, Kentucky 40601-1403 502-573-2886 Voice 502-573-2355 Fax

natural areas in Kentucky have never been thoroughly surveyed, and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Sara Hines Data Manager

SLD/SGH

Enclosures: Data Report and Interpretation Key

ii. U.S. Fish and Wildlife Service



United States Department of the Interior Received

WILDLIFE SERVICE Det 29, 2008

330 West Broadway, Suite 265 Frankfort, Kentucky 40601 (502) 695-0468 October 24, 2008

Mr. Mike Frank GAI Consultants 625 Eden Park Drive, Suite 250 Cincinnati, OH 45202

Subject: FWS 2009-B-0059 Threatened and endangered species information request for Cane

Run Generating Station, Jefferson County, Kentucky

#### Dear Mr. Frank:

Thank you for the correspondence dated October 7, 2008 regarding the E.ON U.S./Louisville Gas and Electric Company's plan to develop a long-term plan for the storage of coal combustion products produced at the Cane Run Generating Station. According to the provided information, the proposed project will result in the construction of a special waste landfill (or impoundment) at the Cane Run facility.

Fish and Wildlife Service (Service) personnel have reviewed the provided information and offer the following comments. Because there were no habitat descriptions included in the correspondence for the proposed project, the Service cannot make site-specific recommendations. However, the Service has compiled a list of federally listed and federal candidate species that are known to occur or have the potential to occur within the area of concern.

Common Name	Scientific Name		٠.	Federal Status
Indiana bat	Myotis sodalis	4.1		endangered
Gray bat	Myotis grisescens			endangered

Several listed mussels species are known or have the potential to occur within the Ohio River in Jefferson County, but as this project does not propose any river impacts, these do not need to be considered. Should the scope of the project change, please contact our office for a revised species list.

Please note that collection records available to the Service may not be all-inclusive. Our database is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitats and does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. If additional assistance is needed in determining if the proposed project may impact a federally listed species, we recommend that you contact us for further consultation.

Thank you for the opportunity to comment on this action. If you have any questions regarding the information provided, please contact Jennifer Garland at (502) 695-0468 (ext.115).

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

iii. Kentucky Department of Fish and Wildlife Resources	



#### KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES TOURISM, ARTS, AND HERITAGE CABINET

Steven L. Beshear Governor #1 Sportsman's Lane Frankfort, Kentucky 40601 Phone (502) 564-3400 1-800-858-1549 Fax (502) 564-0506 fw.ky.gov Marcheta Sparrow Secretary

Dr. Jonathan W. Gassett Commissioner

November 13, 2008

Michael Frank GAI Consultants, Inc. 625 Eden Park Drive - Suite 520 Cincinnati, OH 45202

RE: Coal Combustion Product Storage Project for the Cane Run Generating Station

Dear Mr. Frank:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) have received your request for the above-referenced information. The Kentucky Fish and Wildlife Information System (KFWIS) indicate that the federally endangered gray bat, Myotis grisescens and Indiana bat, Myotis sodalis are known to occur within close proximity to the project area. Please be aware that our database system is a dynamic one that only represents our current knowledge of the various species distributions.

- The Indiana bat utilizes a wide array of habitats, including riparian forests, upland forest, and fencerows for both summer foraging and roosting habitat. Indiana bats typically roost under exfoliating bark, in cavities of dead and live trees, and in snags (i.e., dead trees or dead portions of live trees). Trees in excess of 16 inches diameter at breast height (DBH) are considered optimal for maternity colony roosts, but trees in excess of 9 inches DBH appear to provide suitable maternity roosting habitat. Removal of suitable Indiana bat roost trees due to construction of the proposed project should be completed between October 15 and March 31 in order to avoid impacting summer roosting Indiana bats.
- To minimize impacts to aquatic resources and bat foraging areas, strict erosion control measures should be developed and
  implemented prior to construction to minimize siltation into streams located within the project area. Such erosion control
  measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion
  ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired
  regularly as needed.

For more information on how to proceed with the federally listed threatened/endangered species please contact the US Fish and Wildlife Service Kentucky Field Office at (502) 695-0468.

It appears that the proposed project has the potential to impact wetland habitats. KDFWR recommends that you look at the appropriate US Department of Interior National Wetland Inventory Map (NWI) and the appropriate county soil surveys to determine where the proposed project may impact wetlands. Additionally, field verification may be needed to determine the extent and quality of wetland habitats within the project area. Any planning should include measures designed to eliminate and/or reduce impacts to wetland habitats. If impacts cannot be avoided, mitigation should be properly designed and proposed to offset the losses. KDFWR will recommend, at a minimum, a 2:1 mitigation ratio for any permanent loss or degradation of wetland habitats.



KDFWR recommends that you contact the appropriate US Army Corps of Engineers office and the Kentucky Division of Water prior to any work within the waterways or wetland habitats of Kentucky. Additionally, KDFWR recommends the following for the portions of the project that impact streams:

- · Channel changes located within the project area should incorporate natural stream channel design.
- If culverts are used, the culvert should be designed to allow the passage of aquatic organisms.
- Culverts should be designed so that degradation upstream and downstream of the culvert does not occur.
- Development/excavation during low flow period to minimize disturbances.
- Proper placement of erosion control structures below highly disturbed areas to minimize entry of silt into area streams.
- Replanting of disturbed areas after construction, including stream banks, with native vegetation for soil stabilization and
  enhancement of fish and wildlife populations. We recommend a 100 foot forested buffer along each stream bank.
- Return all disturbed instream habitat to a stable condition upon completion of construction in the area.
- Preservation of any tree canopy overhanging any streams within the project area.

I hope this information proves helpful to you. If you have any questions or require additional information, please call me at (800) 852-0942 Extension 4472.

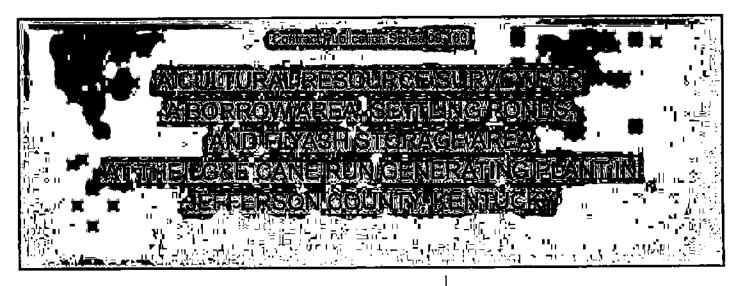
Sincerely,

Doug Dawson

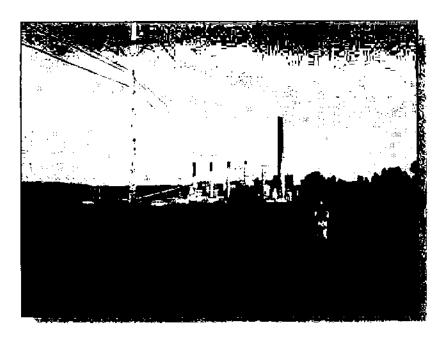
Wildlife Biologist III



State Historic Preservation Officer Correspondence
A Cultural Resource Survey for a Borrow Area, Settling Ponds, and Flyash Storage Area at the LG&E Cane Run Generating Plant in Jefferson County, Kentucky







by Russell S. Quick and Andrew P. Bradbury, RPA

with a contribution by Jennifer M. Faberson

Prepared for



**Stantec** 



Prepared by



Lexingron Fir. | Huaricone WV North Heights Gri | Evansville (N. ) Mt. verner (F. Congress Cri O | Challeson Wh

# A CULTURAL RESOURCE SURVEY FOR A BORROW AREA, SETTLING PONDS, AND FLYASH STORAGE AREA AT THE LG&E CANE RUN GENERATING PLANT IN JEFFERSON COUNTY, KENTUCKY

by

Russell S. Quick and Andrew P. Bradbury, RPA

with a contribution by Jennifer M Faberson

Prepared for

Stephen Hall Stantec Consulting, Inc. 1901 Nelson Miller Parkway Louisville, Kentucky 40223 (502) 232-5000

Prepared by

Cultural Resource Analysts, Inc. 151 Walton Avenue Lexington, Kentucky 40508 Phone: (859) 252-4737 Fax: (859) 254-3747 E-mail: cmniquette@crai-ky.com CRA Project No.: K09S018

Charles M. Niquette, RPA Co-Principal Investigator Andrew P. Bradbury, RPA Co-Principal Investigator

September 28, 2009

Lead Agency: United States Army Corps of Engineers (Permit Application Number Pending)
OSA Project Registration Number: FY10\_6083

#### **ABSTRACT**

On August 10, 11, and 12, 2009, Cultural Resource Analysts, Inc., personnel completed a cultural resource survey of a proposed borrow area, settling ponds, and flyash storage area in Jefferson County, Kentucky. The survey was conducted at the request of Stephen Hall of Stantec Consulting, Inc. The project area consisted of two parcels on either bank of Mill Creek Cutoff: an open field of low grass and weeds in the south and a lightly forested area with moderate undergrowth in the north. The project area was located on the property of the Louisville Gas and Electric Cane Run Generating Plant along the Ohio River approximately 1.3 km (.8 mi) southwest of the community of Riverside Gardens. The entire 55.2-ha (136.4-acre) project area was surveyed.

Prior to the field survey, a records review was conducted at the Office of State Archaeology. The review indicated that no previous archaeological surveys had been conducted and no archaeological sites had been previously recorded within the project area. A review of historic maps showed that three structures were located within, or directly adjacent to, the project area in 1950, but no structures were shown within the project area on later maps.

The field investigation consisted of intensive pedestrian survey supplemented by screened shovel tests, auger testing, and backhoe trenching. All shovel tests indicated extensive disturbance to the soils due to historic and modern land use. Auger and backhoe testing also indicated extensive disturbance to both parcels of the project area.

One archaeological site (15Jf763) was documented during the survey. The site was located at the end of a dead-end road depicted on topographic maps dating between 1912 and 1951. Site 15Jf763 consisted of a moderately low density scatter of artifacts dating to the early to middle twentieth century. All of the artifacts from 15Jf763 were found on the surface. No cultural materials were found in shovel tests, and there was no evidence of intact subsurface remains, intact architectural structures, or archaeological features.

Because of the paucity of materials and the lack of integrity, 15Jf763 is recommended as not eligible for the National Register of Historic Places. No sites listed in, or eligible for, the National Register of Historic Places will be affected by the proposed project, and cultural resource clearance is recommended.

#### **TABLE OF CONTENTS**

ABSTRACT	
LIST OF FIGURES	iii
LIST OF TABLES	iii
I. INTRODUCTION	1
II. ENVIRONMENTAL SETTING	2
III. PREVIOUS RESEARCH AND CULTURAL OVERVIEW	11
IV. METHODS	25
V. MATERIALS RECOVERED	27
VI. RESULTS	36
VII. CONCLUSIONS AND RECOMMENDATIONS	39
REFERENCES CITED	40
APPENDIX A. SCOPE OF WORK	A-1
APPENDIX B. HISTORIC MATERIALS RECOVERED	B-1
Figure 1. Map of Kentucky showing the location of Jefferson County.  Figure 2. Location of the project area on a topographic map.  Figure 3. Project area plan map.	3
Figure 4. Drainage system of the Ohio River	5
Figure 5. Overview of the northern parcel of the project area, facing southwest.	
Figure 6. Overview of the southern parcel of the project area, facing northwest	
Figure 8. Structures depicted on the 1950 Kosmosdale, Kentucky/Indiana 15-minute quadrangle	18
Figure 9. Borrow pit at Cane Run Generating Plant showing homogenous subsoil profile.	27
Figure 10. A selection of the artifacts recovered from Site 15Jf763Figure 11. Overview of Site 15Jf763	29 36
Figure 12. Plan view of Site 15Jf763.	37
Figure 13. Representative soil profile from Site 15Jf763.	38
LIST OF TABLES	
Table 1. Summary of Selected Information for Previously Recorded Archaeological Sites in Jefferson	n County 15
Table 2. Historic Artifacts Recovered According to Functional Group.  Table 3. Historic Artifacts From Site 15Jf763	
Table B.1. Historic Materials Database.	

#### I. INTRODUCTION

C5X5.

n August 10, 11, and 12, 2009, Cultural Resource Analysts, Inc. (CRA), personnel completed a phase I cultural resource survey of a proposed borrow area, settling ponds, and flyash storage area at the Louisville Gas and Electric (LG&E) Cane Run Generating Station in western Jefferson County, Kentucky. The project area was adjacent to the Ohio River just west of Louisville, Kentucky (Figure 1). The survey was conducted at the request of Stephen Hall of Stantec Constulting, Inc., and the survey area covered approximately 55.2 ha (136.4 acres). Fieldwork for the project was by Russell Ouick, completed Stephenson, Lisa Kelley, and Michael Curren in approximately 104 person hours. Office of Archaeology (OSA) Geographic Information Systems (GIS) data requested by CRA on July 13, 2009, was returned on July 20, 2009. The results were researched by Heather Barras of CRA at the OSA on July 21, 2009. The OSA project registration number is FY10 6083. The scope of work is included as Appendix A.

#### **Purpose of the Study**

The study was conducted to comply with Section 106 of the National Historic Preservation Act. This project requires a Section 404 permit under the Clean Water Act from the United States Army Corps of Engineers (USACE) or is federally funded, and is therefore considered an undertaking subject to Section 106 review.

The purpose of this assessment was to 1) locate, describe, evaluate, and to make appropriate recommendations for the future treatment of any historic or prehistoric archeological properties that may have been threatened by proposed construction activities and 2) to assess the potential for archeological sites requiring preservation in place. For the purposes of this assessment, a site was defined as "any location where human behavior has resulted in the deposition of artifacts, or other evidence of purposive behavior at least 50 years of age" (Sanders 2001:8). Cultural deposits less than 50 years of age were not considered to be sites in accordance with the Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation" (National Park Service 1983).

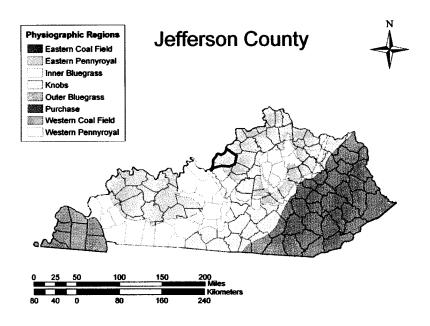


Figure 1. Map of Kentucky showing the location of Jefferson County.

A description of the project area, the field methods used, and the results of this investigation follow. The report is intended to conform to the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* (Sanders 2001).

#### **Project Description**

The project consists of a proposed 55.2-ha (136.4-acre) borrow area, settling ponds, and flyash storage area. LG&E is proposing to initially borrow clay-bearing soils and sands from two locations in order to cap existing flyash storage mounds. These borrow pits will eventually become storage areas themselves. The project area is located in western Jefferson County approximately 1.3 km (.8 mi) southwest of the community of Riverside Gardens along the Ohio River (Figures 2 and 3). The project area consisted of two parcels on either bank of Mill Creek Cutoff, formerly known as Big Cane Run. The southern parcel consisted of an open field of grass and weeds. The northern parcel consisted of a wooded area with numerous ATV trails and dirt roads.

#### **Summary of Findings**

No previously recorded sites were identified within the project area in the OSA file search. One archaeological site (15Jf763) was recorded during the current cultural resource survey. The archaeological site consisted of a moderate scatter of historic household items and structural materials dating to the early to mid-twentieth century. The site was located adjacent to the terminus of a dead-end road depicted on topographic maps dating between 1912 and 1951. Two structures were depicted on a 1950 quadrangle map in close proximity to the historic artifact scatter (United States Geological Survey [USGS] 1950). One of these structures may have been the source of the materials found at Site 15Jf763.

All archaeological remains were found on the surface, and no evidence was found for intact subsurface remains, structures, or archaeological features. Because of the paucity of artifacts and the lack of integrity, Site 15Jf763 is recommended not eligible for the National Register of Historic Places (NRHP). No sites listed in, or eligible for, the NRHP will be affected by the proposed project. Cultural resource clearance is therefore recommended for the project.

## II. ENVIRONMENTAL SETTING

#### **Physiography**

Jefferson County is almost entirely situated in the Outer Bluegrass physiographic region of Kentucky. The southwest portion of the county is located within the Knobs physiographic region adjacent to Muldraugh Hill. The extreme eastern part of Jefferson County is rolling to hilly, while the central and northern parts are a tableland of low relief (McGrain and Currens 1978:41).

Undulating to rolling ridgetops and short, hilly sideslopes generally characterize the Outer Bluegrass physiographic region. The tableland area occupies the largest part of the county. This area is essentially a gently southwestward sloping surface from a high of 241 m (790 ft) above mean sea level (AMSL) on the east to 152 m (500 ft) AMSL at the foot of the knobs in the southwest part of the county.

The geologic formations specific to the Outer Bluegrass are the limestones, calcareous shales, and siltstones of the Fairview Formation of the Ordovician period. The major hydrologic feature of the county is the Ohio River and its tributaries (Zimmerman 1966).

The area is located within the Ohio River drainage system (Figure 4). Floyds Fork, Harrods Creek, Goose Creek, and numerous small streams drain the county. Garrison Ditch and Mill Creek Cutoff drain the project area.

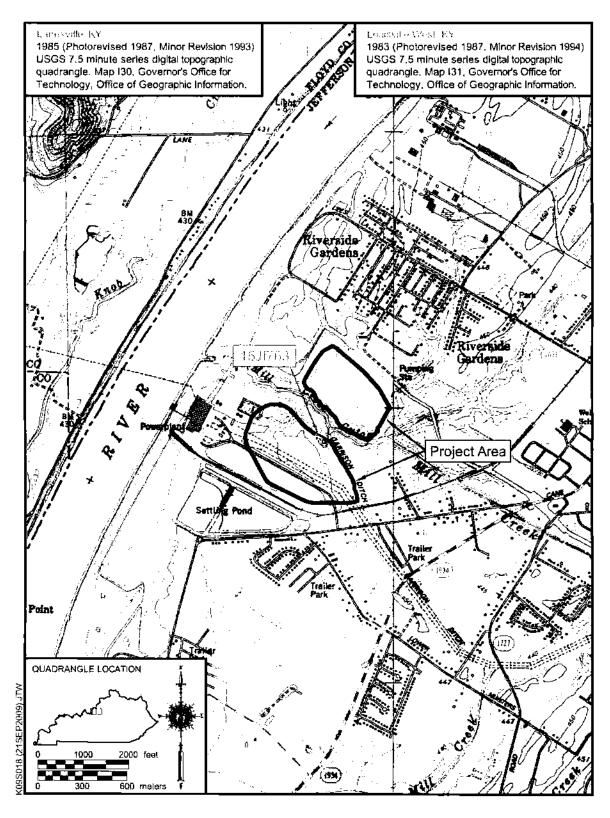


Figure 2. Location of the project area on a topographic map.

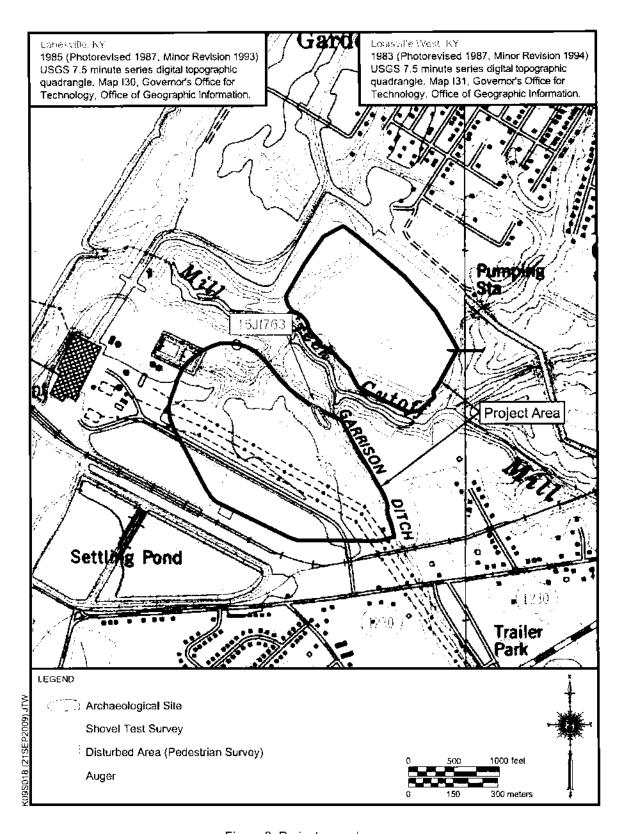


Figure 3. Project area plan map.

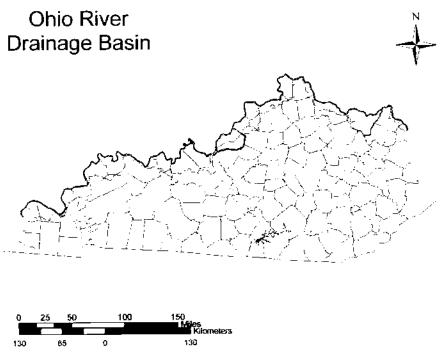


Figure 4. Drainage system of the Ohio River.

#### Soils

Seven soil associations have been mapped in Jefferson County. A group of geographically related soils that form a fairly definite pattern is called a soil association. Soils found in one association can occur in other soil associations in different patterns. Most of the soils in Jefferson County developed from loess that was deposited on limestone bedrock (Zimmerman 1966:2, 129).

Wheeling-Weinbach-Huntington association soils are level to sloping soils on terraces and bottoms along the Ohio River. Memphis-Loring-Zanesville association soils are sloping to steep soils on loess-capped hills of sandstone and shale. Zipp-Robertsville association soils are poorly drained soils of the slack-water flats. Westmoreland-Litz-Muskingum soils are steep, shallow soils on the Knob Hills and sloping, colluvial soils on Russellville-Crider-Dickson footslopes. association soils are well drained moderately well drained soils over limestone on uplands. Crider-Corydon association soils are level to sloping on broad ridges and steep.

shallow soils over limestone on hillsides. Beasley-Fairmount-Russellville association soils are gently sloping or sloping on narrow ridges and strongly sloping or steep, shallow soils over limestone on hillsides (Zimmerman 1966:2–7).

The Wheeling-Weinbach-Huntington association is dominant in the western portion of Jefferson County and is the only association represented in the current project area (Zimmerman 1966:General Soil Map). Every major soil series within the project area arranged by taxonomic class (subgroup) represented within this association is described in more detail below. The following descriptions were taken from the United States Department of Agriculture-Natural Resources Conservation Service Official Soil Series Descriptions (Soil Survey Staff 2009) unless otherwise noted.

Three quarters of the project area consisted of soils modified by human activity. These include areas of Dump/Ash "soils," Urban Land soils, and Urban Land-Udorthents complex soils. Those areas of the current power plant where coal is stored or where

flyash is processed into environmentally acceptable fill are classified as dump/ash "soils." Urban Land soils have often been disturbed by repeated use and may contain building rubble, scrap metal, and other contaminants. These soils are found within the project area under parking lots and driveways (Soil Survey Staff 2009).

Urban Land-Udorthents complex soils make up the largest percentage of soils in the project area (51 percent). These soils are found on slopes ranging from 0 to 12 percent. The depth to the water table in these soils ranges from 30 to 122 cm (12 to 48 in). The presence of these soils is indicative of extensive human modification of the landscape from, for example, logging, mining, or earth moving. Nearly the entire northern parcel of the project area is mapped as Udorthents soils, probably as a result of the removal of soil for the construction of the levee system along the Ohio River (Soil Survey Staff 2009).

Otwood series soils (Oxyaquic Fragiudalfs) consist of very deep, moderately well drained soils with a fragipan. This series is found on nearly level to moderately steep stream and river terraces. The soil formed in a mixture of loess and silty alluvium and the underlying residuum of shale, siltstone, sandstone, or limestone (Soil Survey Staff 2009).

Robertsville soils (Typic Fragiaqualfs) are typically late Pleistocene in age and are found on stream terraces and concave upland areas that are succeptible to ponding. Slopes range from 0 to 2 percent. These soils developed in old mixed alluvium or colluvium derived from limestone, sandstone, siltstone, shale, or loess. Robertsville soils have an Eg horizon formed by the leaching of silicate clay, iron, and aluminum due to wetness. Robertsville soils are typically found forested or can be used for agriculture if sufficiently drained (Soil Survey Staff 2009).

Sciotoville soils (Aquic Fragiudalfs) are likely late Pleistocene in age and commonly have redoximorphic features within the soil profile and a fragipan below an argillic or cambic horizon (Soil Survey Staff 1999:202). These soils formed on stream terraces from acid silty old alluvium derived from shale, micaceous sandstone, and quartzite. Sciotoville soils are typically used for agriculture (Soil Survey Staff 2009).

The Weinbach series (Aeric Fragiaqualfs) consists of deep, somewhat poorly drained, very slowly permeable soils with fragipans formed in old acid alluvium of stratified silt loam, silty clay loam, and loam with some sand in the underlying materials (Soil Survey Staff 2009). These soils are on terraces and slopes and typically have a dark grayish brown (10YR 4/2) silt loam A-horizon over a brown (10YR 5/3) silt loam E-horizon that has faint light brownish gray (10YR 6/2) mottles. The fragipan (Btx-hrizon) is typically at a depth of 23 inches and is characterized by light brownish gray (10YR 6/2) silty clay loam (10YR 6/2), silty clay loam with many distinct coarse dark brown (10YR 4/3) mottles, and few black (10YR 2/1) accumulations of iron and manganese oxides. Weinbach soils are also likely late Pleistocene aged outwash deposits found on terrace slopes that were previously wooded (Soil Survey Staff 1999:181).

Wheeling series soils (Ultic Hapludalfs) are found on landforms dating to the late Pleistocene (Soil Survey Staff 1999:208). Slopes range from 0 to 55 percent based on landform but are typically from 0 to 8 percent. These soils are very deep and well drained. They formed in the late Pleistocene on river terraces in silty or loamy alluvium. Many areas of Wheeling soil are used for industrial and residential sites along the Ohio River. The final soil in the project area, Urban Land-Alfic Udarents-Wheeling complex, is a combination of Wheeling, Urban Land, and soils that have been modified by mining or earth moving (Soil Survey Staff 2009).

#### Soil Series Geomorphology, Age, and Archaeological Potential

The soil series are classified by the amount of time it has taken them to form and the landscape position they are found on (Soil

Survey Staff 1999). This information can provide a relative age of the soils and can express the potential for buried archaeological deposits within them (Stafford 2004). The soil order and group classifications for each soil series are used to assist with determining this potential.

Otwood, Robertsville, Sciotoville, Urban Land-Alfic Udarents-Wheeling complex, Weinbach, and Wheeling series soils are classified as Alfisols. This class of soils developed on late-Pleistocene deposits or older surfaces (Soil Survey Staff 1999). Due to their acidity, uncalcified faunal remains are unlikely to be preserved in Alfisols for long periods. However, Alfisols may contain intact archaeological deposits very near or on the ground surface, depending upon the landform on which they formed (e.g., sideslope vs. ridgetop).

The Urban land-Udorthents series soils are classified as Entisols. These are soils that formed very recently in unconsolidated parent material and that do not have diagnostic horizons except an A horizon (Soil Survey Staff 1999). Because of their recent age, Entisols rarely have buried and intact archaeological deposits.

As noted, the majority of the project area had been previously disturbed by human activities, including earth removal, logging, and the creation of a flood wall, large drainage basins, and ditches for water control. Even those areas that were mapped as potentially having archaeological resources were heavily disturbed. In most cases, the topsoil had been destroyed all the way to the subsoil (C horizon), which was exposed at the surface.

#### Climate

The climate in this area of Kentucky is continental in character, and temperature and precipitation levels fluctuate widely. The prevailing winds are westerly; therefore, most of the storms cross the state in a west to east pattern. Low-pressure storms that originate in the Gulf of Mexico and move in a northeasterly direction across Kentucky contribute the greater proportion of

precipitation received by the state. Warm, moist, tropical air masses from the Gulf predominate during the summer months when humidity levels also remain quite high. As storms move through the state, occasional hot and cold periods of short duration may be experienced. During the spring and fall, storm systems tend to be less severe and have a smaller frequency, resulting in less radical extremes in temperature and rainfall (Anderson 1975).

Based on records kept in Louisville, the average daily maximum temperature in January is 43.5 degrees Fahrenheit, whereas the average daily minimum temperature is 25.5 degrees Fahrenheit. The average temperature range for July is a maximum of 88.5 degrees Fahrenheit and a minimum of 65.5 degrees Fahrenheit. Precipitation levels indicate an average range of approximately 5.71 cm (2.25 in) for October to 11.66 cm (4.59 in) for March (Zimmerman 1966:132).

#### Prehistoric Climate

Climatic conditions during the terminal Pleistocene and Holocene ages represent a series of transitions in temperature, rainfall, and seasonal patterns (Anderson 2001; Niquette and Donham 1985:6–8; Shane et al. 2001). These transitions created a wide range of ecological variation, which altered survival strategies of human populations. One can posit a link between certain climatic events and the development of prehistoric cultures in the eastern woodlands of North America (Anderson 2001). Human responses to environmental factors are varied though, and not all cultural change was "determined" by climatic events.

The Wisconsin glacial maximum occurred approximately 21,400 years B.P., or 18,000 radiocarbon years before present (rcbp) (Anderson 2001; Delcourt and Delcourt 1987). The landscape at that time was quite different from that of today. Much of the mid-continent consisted of periglacial tundra dominated by boreal conifer and jack-pine forests. Sea levels were approximately 100 m (328 ft) below present levels, and because so much water was contained by the glaciers, the coastal plains

were approximately twice the size they are today (Anderson 2001:152). During the Wisconsin glacial epoch, eastern North America was populated by a variety of faunal species, including megafaunal taxa such as mastodon, mammoth, saber-toothed tiger, and Pleistocene horse, as well as by modern taxa such as white-tailed deer, raccoon, and rabbit.

A general warming trend and concomitant glacial retreat was under way by circa 15,000 B.P. (Anderson 2001; Shane 1994). After 14,000 B.P., the boreal forest gave way to a mixed conifer/northern hardwoods forest complex. By 10,000 B.P., southern Indiana was probably on the northern fringes of expanding deciduous forests (Delcourt and Delcourt 1987:92-98). Pollen records from the Gallipolis Lock and Dam on the Ohio River near Putnam County, West Virginia, reveal that all the important arboreal taxa of mixed mesophytic forest had arrived in the region by 9000-8500 B.P. (Fredlund 1989:23). Reidhead (1984:421) indicates that the generalized hardwood forests were well established in southeastern Indiana and southwest Ohio by about 8200 B.P.

Prior to approximately 13,450 B.P., conditions were harsh but capable of supporting human populations. It now appears that some people inhabited North America at this time (Adovasio et al. 1998; Dillehay McAvov and McAvoy 1997). Populations were probably small, scattered, and not reproductively viable (Anderson 2001). The Inter-Allerod Cold Period, circa 13,450-12,900 B.P., witnessed the spread of Clovis populations across the continent (Anderson 2001). This period was followed by the rapid onset of a cooling event known as the Younger Dryas, during which megafauna species became extinct, vegetation changed and temperature fluctuated dramatically, Younger Dryas dramatically. The corresponded with the end of the Clovis culture, which gave way to a variety of subregional cultures across eastern North America. The rapid climate change, perhaps as short as 10-40 years, may have been a factor in this settlement shift.

The beginning of the Holocene age (circa 11,300-12,700 B.P.) is associated with rapidly warming temperatures, decreases in cloud cover, and generalized landscape instability (Delcourt 1979:270; Webb and Bryson 1972:107). Temperature increases during this period are estimated to have been three times greater than later Holocene fluctuations (Webb and Bryson 1972:107). During the early Holocene, rapid increases in boreal plant species occurred on the Allegheny Plateau in response to the retreat of the Laurentide ice sheet from the continental United States 1972:517-519; (Maxwell and **Davis** Whitehead 1973:624). At lower elevations, deciduous species were returning after having migrated to southern Mississippi Valley refugia during the Wisconsin advances (Delcourt and Delcourt 1981:147). The climate during the early Holocene was considerably cooler than the modern climate, and extant species in upper altitude zones of the Allegheny Plateau reflect conditions similar to the Canadian boreal forest region (Klippel and Parmalee 1982; Maxwell and Davis 1972:515-516). Conditions at lower elevations were less severe and favored the transition from boreal to mixed mesophytic species. At Cheek Bend Cave in the Nashville Basin, an assemblage of small animals from Late Pleistocene confirms environmental changes that took place during the Pleistocene to Holocene transition, and the resulting extinction of Pleistocene megafauna and establishment of modern fauna in this area (Klippel and Parmalee 1982).

Traditionally, Middle Holocene (circa 8900–5700 B.P./8000–5000 rcbp) climate conditions were thought to be consistently dryer and warmer than the present (Delcourt 1979:271; Klippel and Parmalee 1982; Wright 1968). In this model, the influx of westerly winds during the Hypsithermal climatic episode contributed to periods of severe moisture stress in the Prairie Peninsula and to an eastward advance of prairie vegetation (Wright 1968). Prairies expanded in central Indiana between 8000 and 7000 B.P. (Webb et al. 1983). Pollen data from Hamilton and Marion counties in central Indiana indicate an

oak/hickory dominance of the forest complex and warm, dry conditions sometime after about 8000 B.P. (Engelhardt 1960, 1965).

More recent research (Anderson 2001; Shane et al. 2001:32-33) suggests that the Middle Holocene was marked by considerable local climatic variability. Paleoclimatic data indicate a period of more pronounced seasonality characterized by warmer summers and cooler winters. This evidence is supported by ice core data that show no appreciable decrease in continental ice volume, which would be expected with an increase in global temperature (Hu et al. 1999). However, Webb et al.'s (1983) hypothesis of increased aridity during this period is still valid for much of the region. Delcourt (1979:274) identified Middle Holocene moisture stress along the Cumberland Plateau in Tennessee. Paleoecological data indicate that xeric conditions were not as extreme in this area as in the Midwest, where a considerable advance of prairie vegetation occurred. In fact, because of shifting tropical air masses, the southern central Appalachians may experienced increased precipitation at this time (Delcourt and Delcourt 1997).

The Hypsithermal episode probably influenced adaptive strategies at this time. Stafford (1994) suggests that changing vegetation resulted in heterogeneous upland resource availability in southern Indiana. In this model, the patchy resource base was exploited through a logistical collector strategy, a change from the generalized foraging of the preceding period. In the southeast, the increased seasonal extremes, expansion of pine forests at the expense of oaks, and increasingly xeric conditions probably caused significant social stress to Middle Archaic populations. This stress may have been ameliorated by the consolidation of peoples into riparian settings where hardwood forests persisted (Anderson 2001).

The earliest distinguishable Late Holocene climatic episode began circa 5000 B.P. and ended around 3000 B.P. This episode is associated with the establishment of essentially modern deciduous forest

communities in the southern highlands and increased precipitation across most of the midcontinental United States (Delcourt 1979:270; Maxwell and Davis 1972:517-519; Shane et al. 2001; Warren and O'Brien 1982:73). Changes in local and extra-local forests after about 4800 B.P. may also have been the result anthropogenic influences. (1989:23) reports that the Gallipolis pollen record showed increasing local disturbance of the vegetation from circa 4800 B.P. to the present, a disturbance that may have been associated with the development and expansion of horticulture activity. Based on a study of pollen and wood charcoal from the Cliff Palace Pond in Jackson County, Kentucky, Delcourt and Delcourt (1997:35-36) recorded the replacement of a red cedardominated forest with a forest dominated by fire-tolerant taxa (oaks and chestnuts) around 3000 B.P. The change is associated with increased local wildfires (both natural and culturally augmented) and coincided with increases in cultural utilization of upland (mountain) forests.

Beginning around 2800 B.P., generally warm conditions, probably similar to those of the twentieth century, prevailed until the onset of the Neo-Boreal episode, or Little Ice Age, around 700 B.P. Despite this trend, brief climatic fluctuations occurred during this period. Some of these fluctuations have been associated with adaptive shifts in midwestern prehistoric subsistence and settlement systems. Woodland example, the Middle Hopewellian florescence is temporally correlated with the relatively mild sub-Atlantic climatic episode (Griffin 1961). Likewise, the culture's decline corresponds roughly to the Vandal Minimum (circa A.D. 400–800), a period of global temperature decline. Struever and Vickery (1973) suggest a possible correlation between the onset of a cooler, moister period (circa 1600 B.P.) and increased use of Polygonum by Late Woodland groups in the Midwest (Struever and Vickery 1973:1215-1216). During this same period (1600-1300 B.P.), warmer temperatures have been inferred for the Great Plains and dryer conditions for the Upper Great Lakes

(Baerreis et al. 1976; Warren and O'Brien 1982). Other fluctuations during the Late Holocene are similarly non-uniform across the mid-continental United States; however, the interfaces of all fluctuations are generally consistent. Local paleoecological evidence is required to determine the kinds of climatic fluctuations Woodland populations experienced during the Pacific episode. Given evidence of fluctuations elsewhere, changes most likely occurred circa 1700 B.P., 1300 B.P., and 900 B.P., with a possible earlier change around 2300 B.P.

Studies of historic weather patterns and tree-ring data by Fritts et al. (1979) have indicated that climatological averages are when compared "unusually mild" seventeenth- to nineteenth-century trends (Fritts et al. 1979:18). The study suggests that winters were generally colder, weather anomalies were more common, and unusually severe winters were more frequent between A.D. 1602 and A.D. 1899 than after A.D. Cooler, 1900. moister conditions associated with the Neo-Boreal episode, which began around 700 B.P. and coincided with minor glacial advances in the northwest and Europe (Denton and Karlen 1973; Warren and O'Brien 1982:73). This episode is viewed by Warren and O'Brien as a causal factor in vegetation pattern shifts in northeast Missouri O'Brien (Warren and 1982:74–76). Fluctuations in the Neo-Boreal episode appear to have varied locally (Baerreis et al. 1976:50-52; Warren and O'Brien 1982:73).

The effects of the Neo-Boreal episode, which ended during the mid- to late-nineteenth century, have not been studied in detail for this region. It appears that the area experienced less radical temperature decreases during the Late Neo-Boreal than did the upper Midwest and northern Plains (Fritts et al. 1979), so it follows that related changes in extant vegetation would be more difficult to detect. It is probably safe to assume that average temperatures were at least a few degrees cooler during the late Prehistoric and early Historic periods. The frequency of severe winters and average winter precipitation were probably greater as well. Several scholars

(e.g., Anderson 2001; Griffin 1961; Grove 1988) have observed that the beginning of the Little Ice Age disrupted prehistoric cultures in the Eastern Woodlands. Anderson (2001:166) relates the agricultural difficulties brought on by the climatic downturn to "increased warfare and settlement nucleation, and decreased long distance exchange and monumental construction."

#### Vegetation

The Outer Bluegrass physiographic province is located within the Western Mesophytic Forest (Braun 1950:146). The major vegetation types in this region form a complex mosaic strongly influenced by underlying geologic strata. This is in strong contrast to the situation in the Mixed Mesophytic Forest to the east. Forests in the Bluegrass are generally less luxuriant than those in the Appalachian Plateau and have a greater tendency towards dominance of a few species (Braun 1950:122–123).

The transition from extensive, mixed mesophytic communities in the far eastern part of the state to extensive oak and oak-hickory communities in central and western Kentucky is well marked, despite the more generalized mosaic pattern and the presence of large prairie areas (Braun 1950:123). While old forest trees remain on large estates, there are no extensive areas of original vegetation outside of the river gorges in the Bluegrass, and it is impossible to reconstruct a picture of original forest conditions 1950:125). Beech trees are not represented naturally in the Inner Bluegrass forest; however, beech trees are part of the forested areas in the Outer Bluegrass. The Western Mesophytic Forest is dominated by oak and hickory, but a wide variety of other species are represented.

#### Description of the Project Area

The center of the project area was located approximately 729 m (2,392 ft) north-northeast of the intersection of KY 1934 (Cane Run Road) and Lower Hunters Trace near the

community of Riverside Gardens 1,319 m (4,327 ft) southwest of the intersection of Camp Ground Road and Lees Lane and 600 m (1,969 ft) due east from the guard house at the LG&E Cane Run Generating Plant. Elevations in the project area ranged from 121 m (397 ft) to 140 m (459 ft). The topography was generally flat, but it sloped steeply near drainages. The project area was split into two parcels by Mill Creek Cutoff. The northern parcel was bounded on the northwest by a dike and on the southeastern edge by a tributary of Mill Creek. The southern parcel was bounded on the southeastern edge by Garrison Ditch, a man-made water control feature, and on the northwest by the power plant itself.

Soils within the project area were highly disturbed, primarily due to the construction of flood control features and industrial activities. A typical soil profile consisted of a shallow Ap horizon of dark brown (10YR 3/3) clay loam to a depth of 2–10 cm bgs followed by a subsoil of yellowish brown (10YR 5/4) silty clay loam.

Vegetation within the proposed project area consisted of forest in the northern parcel and fields of knee-high grasses and weeds in the southern parcel (Figures 5 and 6). Exposed areas of surface visibility existed primarily on the terraces in forested areas, in areas disturbed by earth moving, and along the numerous ATV trails.

#### III. PREVIOUS RESEARCH AND CULTURAL OVERVIEW

Prior to initiating fieldwork, a search of records maintained by the NRHP (available online at: http://www.nr.nps.gov/nrloc1.htm) and the OSA (FY10\_6083) was conducted to: 1) determine if the project area had been previously surveyed for archaeological resources; 2) identify any previously recorded archaeological sites that were situated within the project area; 3) provide information concerning what archaeological resources could be expected within the project area; and 4)

provide a context for any archaeological resources recovered within the project area. The OSA file search was conducted between July 13 and 21, 2009. The work at OSA consisted of a review of professional survey reports and records of archaeological sites for an area encompassing a 2-km radius of the project footprint. To further characterize the archaeological resources in the general area, the OSA archaeological site database for the county was reviewed and synthesized. The review of professional survey reports and archaeological site data in the county provided basic information on the types archaeological resources that were likely to occur within the project area and the landforms that were most likely to contain these resources. The results are discussed below.

OSA records revealed that 11 previous professional phase I archaeological surveys, 1 phase II archaeological testing project, and 1 small-scale excavation project have been conducted within a 2-km radius of the project area. Six previously recorded sites have been located in this area also. None of these sites, however, will be affected by the proposed flyash storage facilities.

The records search revealed that six prehistoric (15Jf21, 15Jf237, 15Jf305, 15Jf306, 15Jf341, and 15Jf409) archaeological sites were situated within a 2-km radius of the project area. The 2-km radius included areas within the Louisville West, Kentucky/Indiana, and Lanesville, Indiana/Kentucky, 7.5-minute series quadrangles (USGS 1951a and 1951b).

### Previous Archaeological Surveys

Between August 9 and 27, 1971, the University of Louisville Archaeological Survey conducted phase I investigations for a proposed floodwall, alternate routes, borrow areas, ponding areas, and a recreation area (Chapman 1971). The survey was conducted at the request of the USACE. An unknown amount of acreage was investigated by pedestrian survey and shovel testing.



Figure 5. Overview of the northern parcel of the project area, facing southwest.



Figure 6. Overview of the southern parcel of the project area, facing northwest.

Twenty-eight sites were documented during the survey. Site 15Jf237, a large open habitation site, was located on the second terrace of the Ohio River within 2 km of the current project area. The Arrowhead Farm site, as it was called, had reportedly been heavily surface collected in the past, but test pits revealed at least two occupation zones separated by sterile strata. The site was recommended for intensive investigations.

Excavations were carried out at the Arrowhead Farm site (15Jf237) by the University of Louisville Archaeological Survey in August 1973 (Mocas 1976). The excavations were carried out at the request of the Jefferson County Department of Public Works. Methods included the excavation of 1.5-x-3.0-m (5.0-x-10.0-ft) test units, the removal of the plowzone by backhoe, and posthole testing. Flotation samples were also taken.

The excavations at Arrowhead Farm revealed that it was transitional between the Archaic and Woodland periods. Radiocarbon dates ranged between 665 and 1030 A.D. An Early Woodland bundle burial was found associated with refuse pits, pottery sherds, and a burned area interpreted as a funeral fire. The site also had a Middle Woodland shell midden near its center that contained pottery related to Crab Orchard types. The Late Woodland component consisted of a number of hearths and storage pits. The artifacts from this period included triangular bifaces and pottery. The Arrowhead Farm site was eventually destroyed by the construction of the Louisville flood wall.

From December 1974 through June 30, University of Louisville 1975, the conducted Archaeological Survey archaeological reconnaissance of 654 (1,616 acres) for a proposed river-oriented industrial and port facility. The survey was conducted at the request of the Louisville and Authority. County Riverport Jefferson Methods included pedestrian survey, shovel testing, and test unit excavation.

The survey documented 29 prehistoric archaeological sites. Two of these, Sites

15Jf305 and 15Jf306, are located within 2 km of the current project area. Both of these sites were recommended for monitoring in the event of future land alteration; however, neither of these sites is located within the current project area, and neither will be impacted by the proposed flyash storage facilities (Granger and DiBlasi 1975).

In April, October, and November 1975, the University of Louisville Archaeological Survey conducted an archaeological reconnaissance prior to the construction of a connector/extension along the Jefferson Freeway. The survey was conducted at the request of the Kentucky Transportation Cabinet. An unknown quantity of acreage was investigated by pedestrian survey supplemented by shovel testing.

Five prehistoric archaeological sites were documented during the project. One of these, the Spadie site (15Jf15), was a large, well known Late Archaic/Early Woodland site that was recommended as eligible for the NRHP and was excavated prior to the construction of the Louisville floodwall. No further work was recommended for the others unless changes to the project impacted them. None of these sites are located within 2 km of the current project area, and none will be impacted by the proposed flyash storage facilities (Granger and DiBlasi 1976).

In 1975, Ohio Valley Archaeological Research Associates conducted a phase I archaeological survey for proposed sewer alignments (Chapman 1975). The survey was requested by Vollmer-Presnell-Pavlo - A Joint Venture. Proposed sewer alignments totaling 37 ha (92 acres) were investigated by pedestrian survey. Thirty-seven sites were documented during the project. One of these sites, 15Jf341, a very light surface scatter of lithics, was located within 2 km of the current project area. Site 15Jf341 was severely work and no further was eroded, recommended. The site is not located within the current project area and will not be impacted by the proposed flyash storage facilities.

On January 1, 1976, the University of Louisville Archaeological Survey conducted an archaeological reconnaissance prior to a proposed road widening project along Cane Run Road. The survey was carried out at the request of the Kentucky Transportation Cabinet. Fifteen meters (50 ft) on either side of the existing Cane Run Road were investigated by pedestrian survey and shovel testing, but no archaeological sites were documented. Light monitoring of the area during construction was recommended (Granger et al 1976).

In May 1977, Archaeological Services, Inc., conducted an archaeological survey for a proposed interceptor sewer line (Glover et al 1977). The survey was requested by Vollmer-Presnell-Pavlo and the Louisville and Jefferson County Metropolitan Sewer District. A corridor approximately 13 km (8 mi) long was investigated by pedestrian survey and shovel testing.

Eleven prehistoric sites were documented during the survey. One of these sites, 15Jf21, a small prehistoric open area habitation without mounds, was located within 2 km of the current project area. Site 15Jf21 was recommended for further archaeological work; however, this site is not located within the current project area and will not be impacted by the proposed flyash storage facilities.

In August 1977, Archaeological Services, Inc., of Kentucky, conducted a phase II archaeological assessment for new proposed sewer pipeline alignments (Turnbow and Allen 1977). The survey was conducted at the request of Vollmer-Presnell-Pavlo and the Louisville and Jefferson County Metropolitan Sewer District. The survey documented eight sites, one of which, 15Jf409, was located within 2 km of the current project area. Site 15Jf409 was a prehistoric site of unknown temporal affiliation and was not recommended for further work. The site is not located within the current project area and will not be impacted by the proposed flyash storage facilities.

In November 1994, CRA conducted a phase I archaeological survey for a proposed

location for a Shively post office branch (Kerr 1994a). Approximately 2 ha (5 acres) were investigated by pedestrian survey and shovel testing. No archaeological sites were documented during the survey, and no further work was recommended.

In November 1994, CRA conducted a phase I archaeological survey for another proposed location for a post office in Shively (Kerr 1994b). Approximately 1.6 ha (4.0 acres) were investigated by pedestrian survey and shovel testing. No archaeological sites were documented during the survey, and no further work was recommended.

In December 1996, Pamela A. Schenian and Stephen T. Mocas conducted a phase I archaeological survey of a location for a proposed middle school (Schenian and Mocas 1997). The survey was requested by the Jefferson County Public Schools because a historic cemetery was reported to exist near the proposed building site. Approximately .14 ha (.35 acres) were investigated by pedestrian survey and shovel testing. No archaeological sites or graves were documented by the survey, but monitoring of the building site construction was recommended during because of the potential for unmarked graves.

In January and Feburary 2005, ARCS Ventures, Inc., conducted a phase I archaeological survey of a proposed real estate development (Granger and Smith 2006). The survey was conducted at the request of Redwing **Ecological** Services, Inc. Approximately 17 ha (43 acres) were investigated by pedestrian survey, shovel backhoe trenching. and archaeological sites were documented during the survey, and no further work was recommended.

In February 2006, CRA conducted a phase I cultural resource survey of a proposed 2006). housing development (Davies Approximately 3.8 ha (9.5 acres) were pedestrian survey investigated by shovel testing. No supplemented by archaeological sites were documented during the survey, and no further work was recommended.

## **Archaeological Site Data**

to available data, According archaeological sites have been recorded in Jefferson County (Table 1). The site data indicate that the majority of archaeological sites recorded in Jefferson County consist of open habitations without mounds (78 percent). Other site types in the county include open habitation sites with mounds, historic farm/residence. cemeteries, caves, earth mounds, industrial, quarries, workshops, rockshelters, and other undetermined site types. Open habitations without mounds and historic farm/residences are the only site types that occur in numbers equaling more than 3 percent of the total number for Jefferson County.

Of the time periods represented, historic farm residences comprised 16 percent of the total recorded. For prehistoric sites, the indeterminate or unspecified time periods represent the highest number ( $n=318,\ 41$  percent). Of the sites with prehistoric temporal assignations, the Archaic time period represents the highest number recorded ( $n=169,\ 14$  percent), with Woodland having 106 sites representing 14 percent of the total, the Late Prehistoric with 57 sites representing 7 percent, and Paleoindian with the smallest number of representative time periods (n=5, less than 1 percent).

The landform locations of sites in Jefferson County were examined to determine the likelihood of encountering sites on similar landforms within the project area. The majority of sites in Jefferson County are located on floodplains (53 percent), and the large majority of site types found on floodplains are open habitations without mounds (90 percent). Dissected uplands (n = 85, 13 percent) and terraces (n = 86, 13 percent) have similar numbers of sites; hillsides (n = 40, 6 percent) and undissected uplands (n = 42, 6 percent) also contain similar ratios of site localities. Open habitation without mounds has the highest number of site types recorded in Jefferson County and has a congruent number of sites represented on all landforms. Though open habitation sites are the most frequent site type recorded on all landforms, they are most likely to be found on floodplains.

Table 1. Summary of Selected Information for Previously Recorded Archaeological Sites in Jefferson County, Kentucky.

Site Type:	N	%
Cave	2	0.3
Cemetery	10	1.52
Earth Mound	2	0.3
Historic Farm/Residence	79	12.02
Industrial	8	1.22
Isolated Find	1	0.15
Mound Complex	1	0.15
Open Habitation With Mounds	2	0.3
Open Habitation Without Mounds	509	77.47
Other	5	0.76
Other Special Activity Area	2	0.3
Quarry	1	0.15
Rockshelter	4	0.61
Undetermined	17	2.59
Workshop	9	1.37
Unspecified	5	0.76
Total	657	100
Time Periods Represented:	N	%
Paleoindian	5	0.64
Archaic	169	21.56
Woodland	106	13.52
Late Prehistoric	57	7.27
Indeterminate Prehistoric	308	39.29
Historic	129	16.45
Unspecified	10	1.28
Total	784*	100
Landform:	N	%
Dissected Uplands	85	12.94
Floodplain	349	53.12
Hillside	40	6.09
Теттасе	86	13.09
Undissected Uplands	42	6.39
Unspecified	55	8.37
Total	657	100

<sup>\*</sup> One site may represent more than one time period.

## **Map Data**

In addition to the file search, a review of available maps was initiated to help identify potential historic properties (structures) or historic archaeological site locations within the proposed project area. The following maps were reviewed:

1858 Map of Jefferson County, Kentucky. Jefferson County Office of Historic Preservation (Bergman);

1912a Kosmosdale, Kentucky, 15-minute series topographic quadrangle (USGS);

1912b Topography of Jefferson County, Kentucky (USGS);

1937 Highway and Transportation Map of Jefferson County, Kentucky (Kentucky Department of Highways [KDOH]);

1950 Kosmosdale, Kentucky, 15-minute series topographic quadrangle (USGS);

1953 General Highway Map of Jefferson County, Kentucky (Kentucky State Highway Department [KSHD]);

1951a Lanesville, Indiana/Kentucky, 7.5-minute series topographic quadrangle (USGS);

1951b Louisville West, Kentucky/Indiana, 7.5-minute series topographic quadrangle (USGS).

The historic maps indicated that as many as seven structures were located within, or directly adjacent to, the study area. Historic Map Structures (MSs) 1 and 2 were first depicted on the 1858 Map of Jefferson County, Kentucky (Figure 7). MSs 3 and 4 were first depicted on the 1912 map of the Topography of Jefferson County. MS 1 and 2 are also depicted on this map. MSs 1-3 are depicted on the 1912 Kosmosdale, Kentucky/Indiana, 15-minute quadrangle, but MS 4 is either missing or obscured by other features on this map. The same is true on the 1942 reprint of this map; however, MS 4 reappears on the 1950 Kosmosdale, Kentucky/Indiana, 15-minute series quadrangle, so it is probable that it was simply obscured on the earlier versions of this quadrangle.

MSs 1–4 are not depicted on the 1937 Highway and Transportation map of Jefferson County; however, two new structures, MSs 5 and 6, are shown in the southern part of the project area. As mentioned, the 1950 Kosmosdale 15-minute series quadrangle depicts MS 4. It also depicts MSs 1–3 and MS 6 but omits MS 5. In addition, three new structures, MSs 7–9, were depicted on this map. Another change is that MS 1 and MS 3 were shown with two outbuildings each (Figure 8).

All of these structures, with the exception of MS 5 and possibly MS 4, appear to be depicted on the 1951 Lanesville, Indiana/Kentucky, 7.5-minute series quadrangle. MSs 1 and 3 are again depicted with their outbuildings. MS 4 is either missing

or obscured on this map. The 1953 General Highway Map of Jefferson County depicts only five structures, MSs 1, 3, 7, 8, and 9.

The locations of all of the historic map structures that were determined to be within the proposed area of disturbance (MSs 4-8) were investigated for archaeological deposits according to accepted methods. MSs 1-3 and 9 were determined to be outside of the current project area. The field survey documented one site, 15Jf763, which may be the remains of one of the historic map structures (either MS 4 or 7). Site 15Jf763 was documented close to where these structures were depicted on the historic maps. No buildings or building remains were observed in the locations of the other historic map structures, probably due to their removal during the construction of the power plant and floodwall system.

## **Survey Predictions**

Considering the known distribution of sites in the county, the available information on site types recorded, and the nature of the present project area, certain predictions were possible regarding the kinds of sites that might be encountered within the project area. Prehistoric open habitation sites were the primary site types expected, but historic residences and cemeteries were also considered a possibility.

## **Cultural Overview**

# Paleoindian Period (before 8000 B.C.)

It has been recognized that the Paleoindian cultural tradition in the northeastern United States originated with the Clovis culture, a widespread, homogeneous New World culture typified by a distinctive lithic assemblage. The most distinctive members of this assemblage are lanceolate shaped, often fluted, hafted bifaces (Maggard and Stackelbeck 2008). The presence of other artifact types in these Paleoindian assemblages, such as chert knives, scrapers, unifacial tools, and blades, is consistent across the eastern United States.

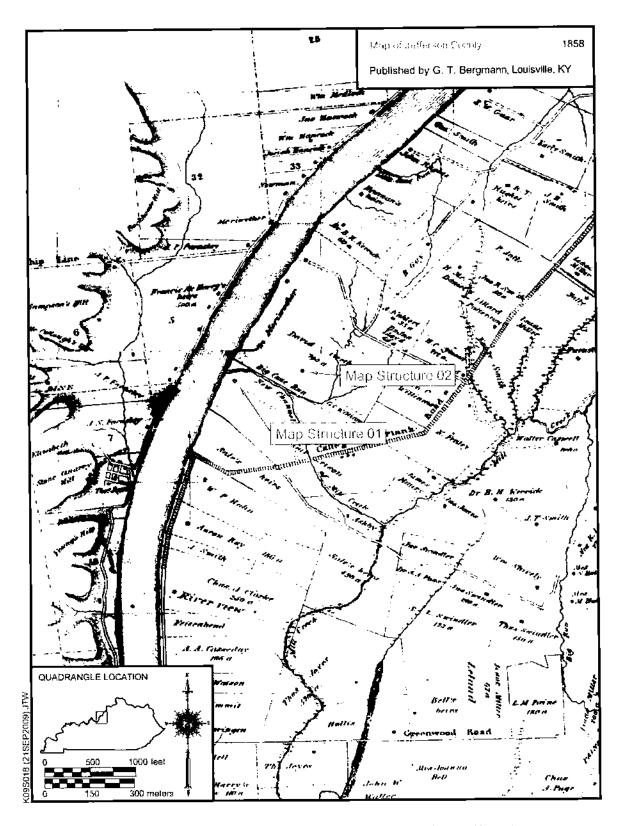


Figure 7. Structures depicted on the 1858 Map of Jefferson County, Kentucky.

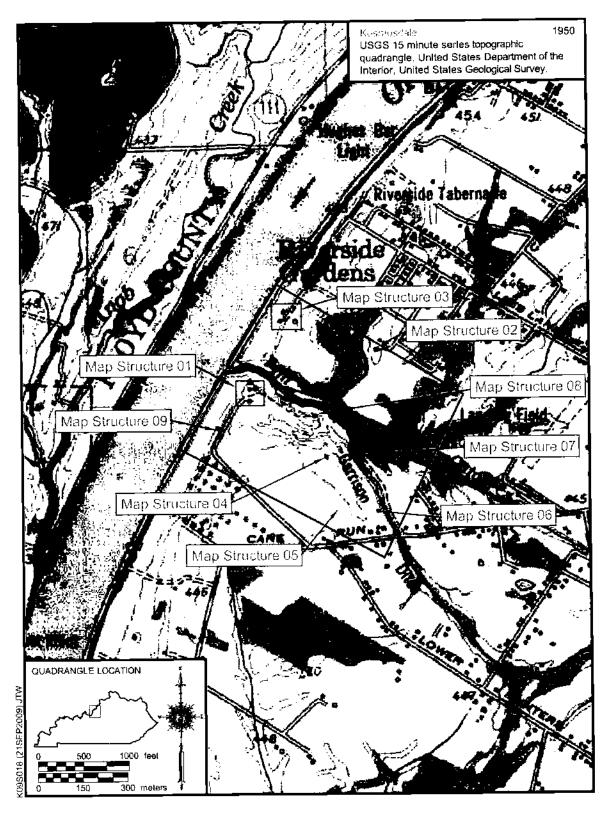


Figure 8. Structures depicted on the 1950 Kosmosdale, Kentucky/Indiana, 15-minute quadrangle.

These types of artifacts have been recovered from Clovis sites such as Holcombe Beach in Michigan (Fitting et al. 1966), Debert in Nova Scotia (MacDonald 1968), Martens in Missouri (Martens et al. 2004; Morrow 1998, 2000), and Topper in South Carolina (Goodyear and Steffy 2003).

Clovis components are not represented in Kentucky, but they have been identified at sites such as Adams, Adams Mastodon, Big Bone Lick, Clay's Ferry Crevice, and Parrish (Tankersley 1996). The artifacts in the Clovis toolkit represent predominantly hunting, butchering, and hideworking activities. Bone tools (e.g., awls, flakers. and possibly shaft needles, straighteners) and ornaments are assumed to have been used but have not been recovered unfavorable environmental because of conditions (Griffin 1978:226).

Post-Pleistocene adaptive strategies were geared for coping with a harsh, but rapidly environment. In general, changing, Paleoindian sites are reflective of areas where small groups of people, perhaps no more than 50 individuals (Tankersley 1996:21), would perform specific tasks of short duration. This type of site casts a very low archaeological profile across the landscape. It has been argued that the earliest subsistence strategies in the eastern United States were not typified by a focus on the harvest of megafauna, but rather by a balanced hunting economy based on the exploitation of migratory game especially caribou-and supplemented by foraged food (Fitting et al. 1966:103-104; Ritchie and Funk 1973:336; Tankersley 1996:22; Walker et al. 2001).

# Archaic Period (8000–1000 B.C.)

As Griffin (1978:226) states, "a purely arbitrary division is made between the earlier fluted point hunter and their direct descendants," yet typological comparisons of artifact assemblages begin to take on distinctly regional characteristics with time. The Archaic period is customarily divided into three subperiods: Early (8000–6000 B.C.), Middle

(6000–3500 B.C.), and Late (3500–1000 B.C.) (Jefferies 2008). By the Early Archaic, the last glaciers had retreated and the arctic-like boreal forest was developing into the eastern deciduous forest. By the Middle Archaic subperiod, the environment was much as it is today. This subperiod is marked by the introduction of groundstone tools, some of which have been interpreted as plant processing implements. At the beginning of the Late Archaic subperiod, the modern deciduous climax forest covered the entire eastern United States. In response to the changing environment and concurrent changes in plant and animal communities, Archaic period peoples developed a more diversified subsistence strategy that included a shift to exploitation of riverine ecosystems and, perhaps, the beginnings of a planned seasonal round exploitation strategy (Winters 1967:32).

The typical artifact assemblage representative of the Archaic period is composed of corner- and side-notched, or stemmed, hafted bifaces, increasing in both quantity and stylistic variation through time but accompanied by a decrease in quality of individual workmanship. Corner- and side-notched forms appear earlier in the sequence, whereas stemmed bifaces appear later (Jefferies 2008).

Judging from the greater frequency with which Late Archaic sites appear among sites that are recognized in the prehistoric record, a population increase may be postulated. Moreover, evidence of longer, more intensive site occupation suggests, in some cases, the possibility of extended habitation in parts of the state (Jefferies 2008).

# Woodland Period (1000 B.C.-A.D. 900)

Griffin (1978:231) notes that during the Late Archaic subperiod there was "considerable evidence for the long distance movement of goods." The interregional movement of goods provided a structure for the transmission of information as well. During this period of interregional dynamism, there was a trend towards a more sedentary

lifestyle with increasingly elaborate burial ceremonialism and, possibly, stratified social organization. These trends, along with the appearance of fired ceramic vessels, mark the transition between Archaic and Woodland peoples (Griffin 1978).

The Woodland period, like the preceding Archaic period, is divided into three subperiods: Early Woodland (1000-200 B.C.), Middle Woodland (200 B.C.-A.D. 400), and Late Woodland (A.D. 400-900) (Applegate Overall, the Woodland period 2008). witnessed a continuation and elaboration of cultural practices that began during the Late Archaic subperiod. Woodland peoples became increasingly dependent on the cultivation of plant foods, which allowed for a more sedentary lifestyle. Except for the latter part of the Late Woodland subperiod, subsistence practices remained similar to the Archaic subsistence patterns, which is to say a combination of hunting, plant food gathering, and fishing in a seasonal round exploitation pattern. It is within the Woodland period that highly visible site types, such as mounds and enclosures, were constructed (Applegate 2008).

# Late Prehistoric Period (A.D. 900–1650)

The Late Prehistoric period has been associated with Mississippian cultures that are more easily recognized in the Mississippi and parts of the Ohio and Illinois River valleys, although Mississippian influences were seen in a much larger geographic area (Pollack Mississippian period 2008). The characterized by chiefdoms and intensive agriculture. Maize (Zea mays), (Phaseolus vulgaris), and squash (Cucurbita sp.) were the principle crops. Nevertheless, hunting and gathering continued to be important in many areas (Smith 1978).

Settlements were arranged in a hierarchical manner, were fortified, contained substructure mounds that were either for ceremonial purposes or dwellings for the elite, and were occupied year-round. Mississippian structures were built using wattle and daub

construction, and the wall posts were set in trenches. Although there were continuously occupied villages in the settlement system, much of the Mississippian population lived in smaller hamlets and farmsteads scattered up and down the major rivers and secondary streams (Smith 1978).

Cultures with a similar level of development included the Pisgah in the Appalachian Summit, the Fort Ancient in the middle Ohio River area, and the Plaquemine of the lower Mississippi River area. Although a Late Woodland level of society continued in the Midwest, the Great Lakes, the Northeast, and the piedmont and coastal areas of the Middle Atlantic until European contact, some contact was made at the boundaries between the Mississippian cultural area and these regions. The Mississippian period is dated to A.D. 800 in the middle Mississippi River area. Between A.D. 900 and 1350, independent Mississippian societies developed in the surrounding regions. These societies lasted until circa A.D. 1550 (Geier 1992:279-280).

# Protohistoric and Historic Aboriginal Period (A.D. 1650–1814)

By the beginning of the seventeenth century A.D., the Ohio River valley was populated by several sedentary cultural groups (Schwartz 1967). After 1680, the cultural fabric of these groups was severely stressed and then reshaped in the wake of shifting fur trade patterns (Hunt 1940), which resulted in the increasing displacement of resident Native-American groups by newly arriving Native Americans (Hunter 1978:588).

After A.D. 1724, Native-American tribes, who we can identify as the Shawnee, were present in the region, having been pushed westward from the east (i.e., from the Susquehanna drainage of Pennsylvania) by the expansion of European settlement (McConnell 1992:21). The origins of the Shawnee are not clear, but they can be identified on the Ohio River by A.D. 1750 (or later) at sites such as Bentley and Old Fort Earthworks (named for

the nearby Middle Woodland earthworks) (Henderson et al. 1986:131–137; Henderson et al. 1992:270–278; Pollack and Henderson 1984).

The conflicts between the Shawnee and other groups of the middle Ohio (e.g., Delaware, Miami, Piankashaw, and Wyandot) lasted through the War of 1812. They are a part of the conflict between the French and British and later the British and the new American Colonies (Hammack 1992:928–929; McBride and McBride 2008; O'Donnell 1992:815).

#### **Historic Period**

The first Europeans to visit Kentucky included explorers, trappers, traders, and surveyors. It was in the 1750s, when the English Crown attempted to colonize the Ohio Valley, that the first organized attempt to settle Kentucky occurred. This attempt stimulated the formation of land companies that sent surveyors into the area (McBride and McBride 2008:909). One of these, the Ohio Land Company, sent a surveyor into Kentucky in 1751. The French and Indian War that erupted in 1754 disrupted this early exploration (Talbert 1992:689).

In 1763, England's King George III set aside the land west of the Appalachians for Indians and English fur traders and closed the area to permanent settlement. His decree was ignored, however, and further colonial exploration and development could not be stopped. One man who took advantage of the commercial expansion westward was Daniel Boone. Boone first explored Kentucky in 1767, and by 1769, he had explored much of the Red and Kentucky River valleys. Harrodsburg was established soon after in 1774, followed by Boonesboro in 1775. The western movement of the American frontier pushed the Native Americans further and further west, and Kentucky was one of the places where they decided to take a stand. In response, Governor Dunmore (of Virginia) waged two large campaigns in the Ohio Valley (later known as Dunmore's War), and the Native Americans were defeated. Dunmore's

War opened Kentucky for settlement, although some hostilities continued after this time (Nickell 1992:96–98; Stone 1992:571).

### History of Jefferson County

Jefferson County is located in north-central Kentucky at the Falls of the Ohio River and is part of the Outer Bluegrass cultural landscape. It was one of the first three counties in Kentucky which, along with Lincoln and Fayette Counties, were formed from Kentucky County, Virginia, in 1780. These three counties became the Commonwealth of Kentucky on June 1, 1792 (Clark 1992). Jefferson County is named for Thomas Jefferson, who was governor of Virginia at the time of its creation.

Originally, Jefferson County contained 20,202 sq km (7,800 sq mi) of land between the Green and Ohio Rivers. Today, it has an area of 997 sq km (385 sq mi), and is surrounded by Oldham, Shelby, Spencer, and Bullitt Counties (Kleber 1992:464). The county seat of Jefferson County is Louisville.

Long before the settlement of Jefferson County, European-American speculators were interested in the lands adjacent to the Falls of the Ohio. This mile-long rapid over a Devonian coral reef was the only natural barrier to navigation on the Ohio-Mississippi River system between modern Pittsburgh and New Orleans. It was an ideal place for a settlement because all river traffic had to stop at that point. (Kleber 1992:305). In 1774, Virginia sent surveyors from Fincastle County, Virginia, to Kentucky to locate land grants for veterans of the French and Indian War. In May, they arrived at the Falls and surveyed 16,187 ha (40,000 acres), including most of what is now the city of Louisville and eastern Jefferson County (Kleber 1992:318; Yater 1987:12). As a result of the military warrants issued for these land grants, John Connolly, a Pennsylvania native and former surgeon's mate in the British army, obtained 809 ha (2,000 acres) on the south side of the Falls in what is now downtown and western Louisville (Kleber 1992:224).

In spite of Connolly's land grant and his intention to lay out a town by selling half-acre lots to potential settlers, the Falls area was not settled until the late 1770s due to Indian hostilities and the outbreak of the American (Yater 2001a:xv). Revolutionary War Settlement steadily began in 1778, however, when Lieutenant Colonel George Rogers Clark of Virginia led an expedition down the Ohio River to capture British posts north of the river at Kaskaskia, Vincennes, and Detroit (Kleber 1992:195). In May, the expedition halted at Corn Island at the head of the Falls to await reinforcements. When the main army moved down river in June, a group of camp followers and military personnel remained behind on the island. Later that year, the Corn Island settlers moved ashore, and their cluster of cabins became the foundation for the modern-day city of Louisville (Wade 1959:14-15; Yater 1987:2-6).

Before a town could develop at the site, however, the 1774 claim of John Connolly had to be addressed. Connolly had become a Tory (i.e., a British loyalist) during the Revolution, and consequently, the Court of Kentucky County ignored his claim and permitted the town of Louisville to be laid out on his grant in 1779. In 1780, the Virginia legislature formally voided Connolly's grant (Wade 1959:15). The town, however, did not live up to its expectations. It developed a reputation for disease, and as a result, most new arrivals moved into the countryside via three branches of Beargrass Creek. By 1800, Louisville had only 359 inhabitants (Wade 1959:17).

Settlers came to Jefferson County along two main routes. Some settlers took flatboats from some point on the upper Ohio and landed at the mouth of Beargrass Creek. Other settlers came through the Cumberland Gap and up the western branch of the Wilderness Road. Another area of early settlement was along what is now the county's southwest border in the Salt River Valley, where salt makers established the county's first significant industry (Kleber 1992:465).

During the 1780s, most of the early pioneers settled near or within seven fortified

"stations" in the Beargrass watershed. As the threat from Native Americans gradually declined, however—the last raid on the county was in 1789—settlers left the stations to establish farms. Incidentally, by the 1790s, with Native American attacks along the Ohio River subsiding, the river route became far more popular than the old trail through the mountains (Yater 1987:2–5).

Most of Jefferson County's early settlers came from Virginia, North Carolina, and Pennsylvania and were of English, Scots-Irish, or German background. Many enslaved African Americans also arrived with their masters. Wealthy Virginians quickly came to dominate the social and political order, controlling the best land and the political system. As a result, yeoman farmers often had to lease, or settle for the more rugged terrain on the edge of the large estates (Kleber 1992:465).

During the 1790s, two towns were founded in the eastern part of Jefferson County as potential rivals to Louisville. In 1784, William White built a house in eastern Jefferson County and later laid out Middletown on the site. In 1797 Abraham Bruner founded Jeffersontown, which was settled primarily by Pennsylvania Germans (Kleber 1992:465; Rennick 1984:152, 196).

Before 1810, Louisville and Jefferson County developed more slowly than the more populous Inner Bluegrass region around Lexington. The arrival of the steamboat on the western waters in the 1810s, however, set a transportation and economic revolution in motion that brought boom times to Louisville and the Falls region. In 1817, there were 17 steamboats, totaling 3,290 tons, on the Ohio-Mississippi system. By 1830, there were 187 boats with a total tonnage of 29,481. In 1829, over 1,000 steamboat landings were made at Louisville. This stimulated the growth of a wide range of businesses, including taverns, hotels, distilleries, hemp-processing factories, machine shops, and warehouses. Between 1810 and 1820, Louisville's population tripled to 4.012. Louisville's boom continued into the next decade, while land-locked Lexington's economy stagnated. By 1830, Louisville was the commonwealth's largest city with a population of 10,000 people. In 1845, the population had increased to 37,218. Of the 37,218 people living in Louisville in 1845, 32,602 (87.6 percent) were white, 4,056 (10.9 percent) were enslaved African Americans, and 560 (1.5 percent) were free blacks (Williams & Co. 1882:264, 294).

During the antebellum years, Jefferson County's farmers were among the state's most productive. In 1850 they led in the value of animals slaughtered, production of hay, market gardening, and orchards (Kleber 1992:465). Germans who had arrived in the county in great numbers in the 1840s and 1850s owned many of these farms (Kleber 1992:465). The strength of the agricultural sector encouraged investment in processing industries. During the 1850s, Louisville was the second largest pork packing center in the nation, butchering over 300,000 hogs a year (Yater 1987:75).

Trade was also an important aspect of the county's economy during the antebellum years. In the 1840s, James Guthrie, an attorney and state legislature who took a steadfast interest in promoting developmental progress in Louisville, led a movement in the city's business community to improve trade through the construction of railroads. Consequently, the Louisville and Frankfort Railroad opened in 1851. More important, however, was the opening of the Louisville and Nashville Railroad in 1859. This greatly strengthened the city's ties to the southern economy (Kleber 1992: 578–579; Yater 1987:75, 2001b:362–363).

The approach of the Civil War brought new challenges to the people of Jefferson County, and Louisville in particular. While Kentucky was a slave state, and cities such as Louisville had become prosperous off of Southern trade, business ties with the North challenged the city's allegiance to the Southern cause. Political conflicts arose in Louisville between Union and Confederate sympathizers, and although Kentucky eventually cast its lot with the Union,

Southern sentiments continued to pervade various segments of the population (McDowell 1962:3). Due to these conflicting Union-supportive Kentucky sentiments. legislators passed a series of resolutions in 1861 that made it a misdemeanor for Kentucky residents to enlist in the Confederate army while in the state, made invasion of the state by Confederate soldiers a felony, and authorized the enlistment of 40,000 Union volunteers (Miller 1990:465). Incidentally, numerous German immigrants, many from Louisville, willingly volunteered to fight for the Union army during this surge in enlistment (Miller 1990:467).

During the Civil War, Louisville became perhaps the most important Union stronghold in the western theater. As an important port on the Ohio River and the northern terminus of the strategic Louisville and Nashville Railroad, it was essential that the Union Army hold the city if it was to hold Kentucky. In September 1862, the Confederate armies of Generals Braxton Bragg and Kirby Smith invaded Kentucky. The Union army of General Don Carlos Buell followed Bragg and beat the Confederates in the race to Louisville. On October 8, Buell won a narrow victory over Bragg at the Battle of Perryville, and the Confederates withdrew into Tennessee. Louisville had been saved and, perhaps, so had the Union cause in the West (Hafendorfer 1991).

The end of the Civil War brought profound social and economic change to Louisville. After Appomattox, thousands of former slaves flocked to the city in hopes of being formally set free. Although this trend was witnessed in other cities as well, in Louisville alone it was estimated that more than 200 emancipated African-American slaves arrived on a weekly basis (McDowell 1962:200). The arrival of so many freed African Americans did little to ameliorate racial tensions between whites and blacks. Instead, violence against African Americans became widespread, and antebellum segregationist policies were reinforced in order to maintain white supremacy and African-American oppression (Cummings and Price 1997:617).

Louisville also attracted a significant number of former Confederate officers who did not want to live in the occupied South after the war. These new arrivals found a city unscathed by war and in the midst of robust economic growth. For these ex-Confederates, Louisville offered the opportunity reestablish themselves in business, politics, and cultural affairs, and many were able to quickly gain respect and prestige within a few short years (Cummings and Price 1997:617). Their social standing in the city had a negative impact on the newly freed African Americans, however, as the majority of these ex-Confederates supported segregationist policies and reinforced white supremacy.

During Reconstruction, Louisville's economy expanded, with the manufacture of steam engines and boilers being the largest industry, employing 2,236 workers by 1870 (Yater 1987:102). In 1867, as perhaps the most telling sign of this progress, the Louisville and Nashville Railroad began the longest iron bridge in the United States over the Ohio River at the Falls. The bridge was dedicated in 1870 (Yater 1987:95-96, 99-100). That same year, Louisville's third charter was approved, and the population increased to 100,753 (Work Projects 1940:32). Administration Although stronghold on Southern trade became a point of contention between the cities of Louisville and Cincinnati, eventually it was generally divided between the two. Nevertheless, Southern sympathies and distrust of the North did not sway Louisville propagandists from accusing Cincinnati of trying to rob Louisville of its trade and for being a hotbed of radicalism (Share 1982:69).

The last two decades of the nineteenth century sparked a significant increase in strained social relations between whites and blacks in the Louisville. Residential segregation became more pronounced, as more and more whites moved out of the inner city to the suburbs, and African Americans moved into the center of town. One of the

reasons why this development occurred after 1880 was due to revolutionary advancements in mass transportation. Streetcars made commuting possible and made it feasible for whites to move to cleaner and quieter "streetcar suburbs" (Share 1982:96). This revolution, combined with the increasing housing shortage and racist attitudes towards blacks, resulted in African Americans being relegated to poorer housing areas in the inner city. While the county seat became an industrial center and continued to struggle with social issues over the turn of the twentieth century, most of Jefferson County remained rural farmland. Not until the 1920s did the suburbanization that began in the 1880s begin swallowing up large tracts of farmland.

During World War I, a major migration of African Americans from the south to the industrial north began. European immigration was curtailed by the nature of the hostilities, and industries in the north were in a labor shortage. Hence, many African Americans migrated to northern cities, such as Detroit, and Louisville's black population decreased somewhat (about 1.1 percent) with this surge in the northern industrial labor market (Adjei-Barwuah 1972:31; Collins 1950:50). Although this percentage does not seem significant, it is notable because it was the first time since the city was established that there had ever been a population decrease in the number of African Americans in the city (Collins 1950:53). During the Great Depression, migration to the north decreased significantly. However, once World War II began, the surge began anew.

After the Second World War, suburbanization and industrial growth boomed at an unprecedented pace. Between 1950 and 1960, the county population outside Louisville city limits nearly doubled to 220,308. By 1960, some 30 independent suburban cities ringed Louisville. The arrival of the interstate highway made it possible to live in the county and commute downtown (Kleber 1992:466).

Social change came as well. In 1945, most of the county's black population lived in Louisville, which was essentially a southern

segregated city. Under the administration of Mayor Charles Farnsley (1948–1953), the city began a slow process of dismantling Jim Crow laws. The public library, major hospitals, and all the county colleges were integrated. Farnsley's successor, Andrew Broaddus, integrated public parks. Nevertheless, the process was slow. In 1975, the federal courts ordered busing to integrate what was still a de facto segregated schools system (Yater 1987:219, 244).

The last half of the twentieth century witnessed great economic growth and the development of manufacturing in the county. In 1951, the General Electric Company announced that it was moving its home appliance manufacturing operation Jefferson County. Before the end of the decade, GE employed more than 16,000 workers at the plant. In 1969, the Ford Motor Company opened the world's largest truck plant in eastern Jefferson County, creating over 4000 jobs. Finally, during the 1980s, United Parcel Service developed its principal distribution center at Louisville's Standiford Field. By 1972 the county suburbs had exceeded the city in population. Jefferson County is, by far, the state's largest metropolitan area, with a population of 665,123 in 1990 and 693,604 in 2000 (Kleber 1992:467; U.S. Bureau of the Census 1990, 2000; Yater 1987:220, 229, 247).

## IV. METHODS

This section describes the methods used during the survey. Site-specific field methods are discussed in further detail in the Site Description section of this report. Laboratory methods specific to the individual analyses are discussed in the specific analysis sections of this report.

## **Field Methods**

The survey area included a proposed borrow location, settling ponds, and a flyash storage area. The project area was determined by mapping provided by Stantec Consulting, Inc., and one of their engineers assisted with locating the project area. The entire project was subjected to an intensive pedestrian survey supplemented by shovel testing, bucket augers, and backhoe testing.

The pedestrian survey and shovel testing were conducted by surveying transects spaced 20 m apart across both parcels of the project area. As previously mentioned, many portions of the survey area were previously disturbed. Those areas that had good visibility were inspected for cultural material. Steep sideslopes were inspected for natural benches and overhangs. Dirt roads and all exposed areas were walked and visually examined for indications of cultural material and features.

Shovel testing was conducted on undisturbed, relatively flat terrain with poor surface visibility. These areas included ridgetops, terraces, and floodplains. Additionally, bucket auger testing was utilized on the southwest floodplain of Garrison Ditch and Mill Creek Cutoff. All soil was screened through .64-cm (.25-in) mesh hardware cloth. Figure 3 depicts the survey methods used in the project area.

When a site was encountered, a Magellan Mobile Mapper 6 Global Positioning System (GPS) unit was used to confirm the site's placement within the project area. Shovel tests were conducted at 10-m intervals around positive surface finds to determine site boundaries and artifact density.

A site sketch map of each site was created depicting the location of all shovel tests, areas of surface collection, features, project boundaries, site boundaries, and other physiographic features. A datum was placed and GPS data collected for its location. A Magellan Mobile Mapper was utilized for collecting all field GPS data.

#### **Surface Collection**

Surface collection was used at 15Jf763 to initially examine the artifact classes present, the density of these materials, and their distribution within the Ap horizon. Surface collection was employed if surface visibility in the project area was greater than 20 percent.

Because all of the artifacts that were observed on the surface were within a small area (less than 10 m in diameter), they were collected and bagged as a general surface collection. Larger materials (e.g. concrete block, building stones) that were not collected were plotted with a GPS unit. The site datum was mapped using a GPS unit.

## **Shovel Testing**

When artifacts were encountered on the ground surface at 15Jf763, additional tests were excavated at 10-m intervals in all cardinal directions, except east, to define the limits of cultural remains.

In all cases, shovel tests measured not less than 35 cm in diameter and extended well into subsoil. Shovel tests were excavated in levels. The Ap horizon was removed as one level. After the Ap horizon was removed, 10-cm arbitrary levels were excavated. All fill removed from the tests was screened through .25-inch mesh hardware cloth, and the sidewalls and bottoms were examined for cultural material and features. No artifacts were recovered from shovel tests.

## **Bucket Augering**

Bucket augering during the current survey was conducted primarily in alluvial soils to determine the possibility of buried deposits and to verify that the majority of the survey area had been previously disturbed. A hand-operated bucket auger with a 4-inch opening was used to excavate augers on transects with 20-m intervals between tests and in apparently undisturbed areas. Sediments were removed in approximately 10-cm levels. All soil was screened through .25-inch mesh hardware cloth. General soil characteristics (e.g., texture or Munsell colors) were recorded by individual level. No buried soils, artifacts, or charcoal layers were noted in the auger tests.

#### **Backhoe Trenches**

1294 gr

As part of the original scope of work for this project, backhoe trenches were planned to better define the nature of the buried deposits in the project area, to examine deep undisturbed alluvial soils, and to assess the potential for deeply buried archaeological sites. Upon arrival, it quickly became clear that there were few undisturbed soils in the project area. As such, the majority of deep subsurface testing was conducted with bucket augers, which as noted in the previous section, indicated that the project area was heavily disturbed by recent and historic activities and held little potential for deeply buried archaeological resources.

As part of the soil survey, an engineer from Stantec Consulting, Inc., excavated backhoe trenches throughout the project area. Several of the trenches in the northern parcel and other exposed subsurface areas in the southern parcel were examined by CRA personnel (Figure 9). These trenches were typically between 1.5 and 2.0 m deep. All of the soils in the trenches appeared to be homogenous subsoils that were now close to the surface due to previous soil removal and erosion. No buried surface soils (A horizons), archaeological concentrations, or features were noted in any of the trenches. Upon completion of the subsurface reconnaissance, all trenches were backfilled.

## **Laboratory Methods**

All cultural material recovered from the project was transported to CRA for processing and analysis. Initial processing of the recovered artifacts involved washing all artifacts, sorting the artifacts into the major material classes (i.e., ceramic, glass, and metal) for further analysis, and assigning catalog numbers. Catalog numbers consisted of the site number and a unique number for each provenience lot or diagnostic specimen. Historic artifacts received a unique catalog number for each material group and class by provenience.

The methods, specifics, and results of subsequent analysis are discussed in each of the specific analysis sections of this report. All cultural materials, field notes, records, and site photographs will be curated at the University of Louisville in Louisville, Kentucky.



Figure 9. Borrow pit at Cane Run Generating Plant showing homogenous subsoil profile.

# V. MATERIALS RECOVERED

Jennifer M. Faherson

site, 15Jf763. The assemblage is described below. In addition, an inventory of materials recovered from this site listed by provenience is presented in the site description section of this report.

### Methods

The historic assemblage includes artifacts classified and grouped according to a scheme originally developed by Stanley South (1977). South believed that his classification scheme would present patterns in historic site artifact assemblages that would provide cultural insights. Questions of historic site function, the cultural background of a site's occupants, and regional behavior patterns were topics to be addressed using this system.

South's system was widely accepted and adopted by historical archaeologists. However,

some have criticized South's model on theoretical and organizational grounds (Orser 1988; Wesler 1984). One criticism is that the organization of artifacts is too simplistic. Swann (2002) observed that South's groups have the potential to be insufficiently detailed. She suggested the use of sub-groups to distinguish between. for example. candleholders used for religious purposes and those used for general lighting. Others, such as Sprague (1981), have criticized South's classification scheme for its limited usefulness on late nineteenth- and early-twentieth-century sites, sites which include an array of material culture—such as automobile parts—not considered by South. Despite its shortcomings, most archaeologists recognize the usefulness of South's classification system to present

Stewart-Abernathy (1986), Orser (1988), and Wagner and McCorvie (1992) have subsequently revised this classification scheme. In this report, artifacts were grouped into the following categories: domestic, architecture, clothing, and personal. The artifacts recovered during this project are summarized in Table 2.

Table 2. Historic Artifacts Recovered According to Functional Group.

Group	Total	Percent
Architecture	1	4.17
Clothing	2	8.33
Domestic	18	75
Personal	3	12.5
Totals	24	100

Grouping artifacts into these specific categories makes it more efficient to associate artifact assemblages with historic activities or site types. One primary change associated with the refinement of these categories is reassigning artifacts associated with the "Miscellaneous and Activities" under South's (1977) original system. Considering the potential variety of historic dwellings and outbuildings within the project area, a refinement of the artifact groupings was considered important to perhaps observe whether the distribution of specific artifact groups would produce interpretable patterns related to activity areas or structure types. Each one of these groups and associated artifacts is discussed in turn.

Information on the age of artifacts as described in the artifact tables is derived from a variety of sources cited in the discussion of the materials recovered. The beginning and ending dates cited need some clarification. Usually, an artifact has specific attributes that represent a technological change, an invention in the manufacturing process, or simple stylistic changes in decoration. These attribute changes usually have associated dates derived from historical and archaeological research. For example, bottles may have seams that indicate a specific manufacturing process patented in a certain year. The bottle then can be assigned a "beginning," or incept, date for the same year of the patent. New technology may eliminate the need for the same patent and the bottle would no longer be produced. The "ending," or terminal, date will be the approximate time when the new technology took hold and the older manufacturing processes are no longer in use.

Specific styles in ceramic decorations are also known to have changed. Archaeological and archival researchers have defined time periods when specific ceramic decorations were manufactured and subsequently went out of favor (e.g., Lofstrom et al. 1982; Majewski and O'Brien 1987). South's (1977) mean technique uses this ceramic dating information. The dates presented here should not be considered absolute but are the best estimates of an artifact's age available at this time. A blank space indicates that the artifact could not be dated or, alternately, that the period of manufacture was so prolonged that the artifact was being manufactured before America was colonized. An open-ended terminal date was assigned for artifacts that may be acquired today. The rationale for presenting dates for the artifacts recovered is to allow a more precise estimate of the time span the site was occupied, rather than the mean occupation date of a site.

A summary of the artifacts recovered follows. A complete inventory of the historic artifacts can be found in Appendix B.

## Materials Recovered by Functional Group

There were 24 historic artifacts recovered during the current survey (Figure 10). The following provides a descriptive discussion of the types and age of artifacts recovered from Site 15Jf763.

## Architecture Group (N = 1)

The architecture group is comprised of artifacts directly related to buildings and those artifacts used to enhance the interior or exterior of buildings. Only one construction material artifact was recovered during the current survey.

## Construction Materials (n = 1)

Construction materials refer to all elements of building construction. For this project, only one building material fragment was recovered. This item was identified as cut marble and was not assigned a specific date.

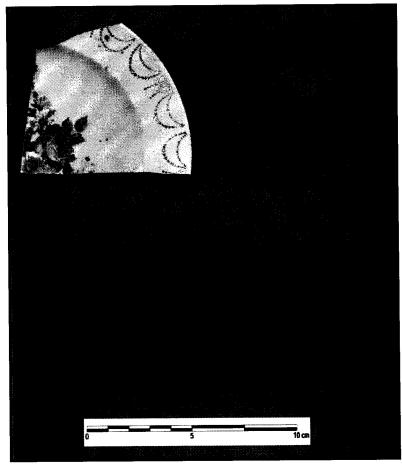


Figure 10. A selection of the artifacts recovered from Site 15Jf763. (a) decal-decorated ironstone with gilt accents; (b) mason zinc canning jar lid with glass liner; (c) iron/steel toy train car.

## Clothing Group (N = 2)

The clothing group includes buttons, clothing fasteners, footwear, and other clothing related items, such as belts, hats, and fabric. Two footwear items were recovered from the current project area. Both of these were identified as rubber shoe heel fragments.

Footwear can be categorized into two types: turned shoes and shoes whose upper is attached to the insole and then reinforced by the heel and outsole. The upper portion of a turned shoe is sewn inside out to a thin sole, then it is turned right side out. At present, turned shoe manufacture has been predominantly replaced by the cementing process, but historically this form thrived.

Before 1812, in the western world, shoes were made by using hand-driven wooden pegs to join soles and uppers. By 1822, a German shoe maker, named Brecht, conceived the use of screws for joining shoe soles and uppers (IMACS 2001). Until the mid-nineteenth century, the footwear industry remained a predominantly manual activity involving the use of little to no machinery (Miranda 2004:195). Some modernization had taken place during the first half of the nineteenth century, including the use of new tools, the standardization of lasts, and the pegged shoe. The first machines, used to prepare and cut the leather for the upper and the sole, were introduced during this time (Miranda 2004:196). Shoe-nailing machines, perfected by Nathaniel Leonard in 1829, drove wire into the shoe fragments, which the machines then cut and subsequently, in some instances, headed. The presence of actual square cut iron or brass nails in a shoe dates it post-1812. Metal fasteners in a shoe date it post-1800 and most likely post-1829 (IMACS 2001).

After the 1850s, the most significant technical innovations in the footwear industry leading to mechanized production occurred. The development of the "Goodyear Welt" sewing machine technique of shoe manufacture between 1862 and 1890, as well as the all rubber heel of 1895, are two of the most datable changes (IMACS 2001; Miranda 2004:197). Since the footwear items recovered from the current project did not contain any distinguishable characteristics, they were not assigned specific dates.

## Domestic Group (N = 18)

Artifacts included in the domestic group consisted of ceramics (n = 2), container glass (n = 9), glass tableware (n = 3), and container closures (n = 4).

A full description of ceramic types recovered from the project area is listed below, followed by descriptions of other domestic group artifacts.

## Ceramics (n = 2)

The ceramics recovered were grouped into two major ware types: ironstone (n = 1) and porcelain (n = 1). Each of these ware groups is reviewed below, followed by discussions of associated decorative types.

#### Ironstone (n = 1)

Ironstone is a white or gray-bodied, refined stoneware with a clear glaze. It is often indistinguishable from whiteware. Ironstone differs from whiteware in that the body is more vitreous and dense. In addition, a bluish tinge or a pale blue-gray cast often covers the body. In some cases, a fine crackle can be seen in the glaze; however, this condition is not as common as it is in whiteware (Denker and Denker 1982:138).

Confusion in the classification of whitebodied wares is further compounded by the use of the term as a ware type or trade name in advertising of the nineteenth century. Both ironstones and whitewares were marketed with names such as "Patent Stone China," "Pearl Stone China," "White English Stone," Royal Ironstone," "Imperial Ironstone," "Genuine Ironstone," "White Granite," and "Granite (Cameron 1986:170; Gates Ware" Ormerod 1982:8). These names do not imply that true ironstone was being manufactured. Some investigators avoid the distinctions entirely by including ironstones as a variety of however, such Others, whiteware. Wetherbee (1980), refer to all nineteenthearthenwares white-bodied ironstone. For this analysis, the primary determining factor in classification of a sherd as ironstone was the hardness and porosity of the ceramic paste. Sherds with a hard vitreous paste were classified as ironstone.

Charles James Mason is usually credited with the introduction of ironstone (referred to as Mason's Ironstone China) in 1813 (Dodd 1964:176). Others, including the Turners and Josiah Spode, produced similar wares as early as 1800 (Godden 1964). As a competitive response to the highly popular oriental porcelain, British potters initiated this early phase of ironstone production. The ironstone of this early phase bears a faint blue-gray tint and oriental motifs, much like Chinese porcelain. A second phase of ironstone began after 1850 in response to the popularity of hard paste porcelains produced in France. This variety of ironstone had a harder paste and reflected the gray-white color of French porcelains.

While some ironstones continued to use oriental design motifs after 1850, the general trend was toward undecorated or molded ironstones (Collard 1967:125-130; Lofstrom et al. 1982:10). Ironstone continued to be produced in England, and after 1870, it was also manufactured by numerous American companies. For many vears. classic ironstone—the heavy, often undecorated ware—had been frequently advertised as being affordable and suitable for "country trade" (Majewski and O'Brien 1987:121). By the late 1800s, these thick, heavy ironstones began losing popularity and were often equated with lower socioeconomic status (Collard 1967:13). At the same time, ironstone manufacturers began shifting to thinner, lighter weight ironstones. As a result, this type of ironstone became popular tableware in American homes during most of the twentieth century (Majewski and O'Brien 1987:124-125). In spite of the shift towards thinner and lighter ironstones, heavy ironstone remained on the market and continues to be popular in hotel/restaurant service (hence, this heavy, twentieth-century ironstone is sometimes called "hotelware"). However, its production for home use all but ceased by the second decade of the twentieth century (Lehner 1980:11).

Only one ironstone fragment was recovered from the project area. This fragment was decal-decorated ironstone with gilt accents. This ironstone fragment also contained a maker's mark used by the Pope-Gosser China Company from 1930 to 1958 (Kovel 1986:199).

#### Porcelain (n = 1)

Porcelain is the name given to hightemperature fired, translucent ware. This ware type was first developed by the Chinese. Chinese, or hard paste, porcelain was introduced to Europe by Portuguese sailors that had traveled to China during the sixteenth century. The formula for true, or feldspathic, porcelain was not discovered in Europe until 1708 and not marketed until 1713 (Boger 1971:266). The production of true porcelain was limited to three factories in England; all other products were softer porcelains made with glass, bone ash, or soapstone. Porcelain made with bone ash, often called "bone china," became the preferred product after 1800, since the paste was harder and the ware was cheaper to produce with bone than with glass or soapstone (Mankowitz and Haggar Among the more affluent 1957:179). households in Europe and North America, porcelain was a common tableware used during the eighteenth and nineteenth centuries (Fay 1986:69). Porcelain production in America was not successful until 1826, and the number of porcelain factories in the United States remained small throughout the nineteenth century.

In the lab, bone china can be differentiated from hard paste porcelain by placing it under ultraviolet light. Bone china fluoresces bluewhite, whereas hard paste porcelain fluoresces magenta (Majewski and O'Brien 1987:128).

Only one porcelain vessel was recovered during the current project. This fragment was decal decorated with an overglaze handpainted decoration. This vessel also contained a maker's mark utilized by the Noritake China Company after 1911 (Kovel 1986:74).

#### Container Glass (n = 9)

A variety of container glass was recovered during the current survey. Research by Baugher-Perlin (1982), Jones and Sullivan (1985), and Toulouse (1972) was used to date glass containers. Glass color was the only attribute that could be used for dating those fragments that were not identifiable as to type of manufacture.

The approximate date of manufacture for bottles and bottle fragments recovered from the project area was established by determining the manufacturing process associated with the bottle (i.e., creation of the base and lip of the container) and using any patent or company manufacturing dates embossed on the bottle.

The lip on a bottle can be informative. A lipping tool, patented in the United States in 1856, smoothes and shapes the glass rim into a more uniform edge than a hand-smoothed lip or "laid-on ring." Certain types or styles of lips were associated with specific contents; for example, medicines were often contained in bottles with prescription lips (Jones and Sullivan 1985). A "sheared," or unfinished, bottle lip typically dates before 1880.

Lipping tools were used throughout the middle and end of the nineteenth century until the advent of the fully automatic bottle machine (ABM) in 1903. It should be noted, however, that as automated bottle manufacture became available after the turn of the

twentieth century (see below), tooled finishes continued to be produced—albeit in steadily decreasing numbers. That is, there is a lag time between tooled finishes and ABM finishes, and although ABM glass is given an incept date of 1903, most tooled-glass vessel sherds will be given a terminal date around the 1920s due to this lag time, unless other diagnostic characteristics are observed, enabling one to give it an earlier terminal date.

The manufacturing process can be roughly divided into three basic groups, including free blown, blown in mold (BIM), and machine manufactured (ABM) vessels (Baugher-Perlin 1982:262–265). Only ABM glass was recovered from the current project.

#### Automatic Bottle Machine (ABM) (n = 9)

The Owens automatic bottle-making machine was patented in 1903 and creates suction scars and distinctive seams that run up the length of the bottle neck and onto the lip. ABM mold provides a manufacturing date at the beginning of the twentieth century. Another automatic bottle machine called the Individual Section was also used in the commercial production of bottles. This machine was widely used starting in 1925 and by 1940 became the most widely used bottle manufacturing device (Jones and Sullivan 1985:39). This bottle machine was more cost effective than the Owens machine, which was no longer used after 1955.

There were nine glass fragments assigned to the ABM category during the current project, and many of these had multiple distinguishing characteristics. Two base types were found, including Individual Section molds and Owens molds. Two Individual Section molds were recovered, including one amber and one light green glass base. The light green Individual Section mold dated after 1925 (Jones and Sullivan 1985:39, Miller and Sullivan 1984:94). The amber Individual Section mold also contained a makers mark used by the Foster-Forbes Glass Company in Marion, Indiana, after 1929 (Toulouse 1972:197). Three Owens mold bases were also recovered. These were all clear glass, and two of these contained maker's marks. The first maker's mark was utilized by the Owens Illinois Glass Company from 1929 to 1954 (Toulouse 1972:403). The second mark was also used by the Owens Illinois Glass Company, but was used from 1940 to 1954 (Toulouse 1972:403).

One body type was recovered. Four embossed sherds were recovered. Three of these were clear glass, and one was amber glass. One finish type was also recovered during the current survey. All of these were external thread finishes and included one amber, one cobalt, and six clear rims. Unless otherwise noted, glass assigned to the ABM category was dated from 1903 to the present.

#### Glass Tableware (n = 3)

Press molding was first used (although on a very small scale) in England in the late seventeenth century to make small solid glass objects, such as watch faces and imitation precious stones (Buckley 1934). By the end of the eighteenth century, decanter stoppers and glass feet for objects were also being produced (Jones and Sullivan 1985). The production of complete hollowware glass objects did not become possible until there were innovations in press-molded techniques in the United States during the late 1820s (Watkins 1930). Mass production of press-molded glassware was well established by the 1830s (Watkins 1930).

Earlier press-molded glass objects were predominately made of colorless lead glass (Jones and Sullivan 1985). William Leighton of the Hobbs-Brockunier Glass Works in Wheeling, West Virginia, invented lime glass. This type of glass looked like lead glass, had superior pressing attributes, and was much more inexpensive than lead glass (Revi 1964). Advancements in mold technology in the 1860s and 1870s led to the application of steam-powered mold operation. This in turn led to increased production and reduced costs (Revi 1964). Modern press molding is conducted entirely by machine (Jones and Sullivan 1985).

Press-molded table glass was made by dropping hot pieces of glass into a mold. A

plunger was then forced into the mold, pressing the hot glass against it. The outer surface of the glass took on the form of the mold, while the inner surface of the glass was shaped by the plunger. The plunger was withdrawn and the glass object was removed from the mold. The surface of the glass was often fire polished to restore the brilliance of the glass surface that was disturbed by its contact with the mold (Jones and Sullivan 1985).

Press-molded glass may be recognized by several characteristics. Usually, the glass object must be open-topped in order for the plunger to be withdrawn from the mold. Narrow mouthed vessels were produced, but additional manipulation of the glass was necessary after the plunger was removed from the mold. Evidence of this manipulation should be present on the vessel (Jones and Sullivan 1985). There is no relationship between the exterior shape and design of a press-molded vessel to the interior shape and design, because the plunger shapes the interior of the object, most often leaving behind a smooth surface. This differs from earlier glass vessel production techniques, like blown glassware, where interior shape was related to the exterior shape and design (Jones and Sullivan 1985).

Another characteristic of press-molded containers was that mold seams were generally present. The seams were sharp and distinct, unless steps had been taken to deliberately remove them. The texture of the glass surface of press-molded glass was disturbed and often disguised by an all-over stipple design. The edges of the designs on press-molded glass had a predisposition toward rounded edges. The bases of press-molded objects were usually polished. The quality of the designs on press-molded glassware was precise, and the design motifs were numerous (Jones and Sullivan 1985).

In contrast to press-molded glass, cut glass generally had a polished, smooth, and glossy surface texture. The design edges were sharp and distinct. Cut glass designs consisted mostly of panels, flutes, and miters. The

designs were often slightly uneven and asymmetrical. Mold seams were usually absent; they were polished off prior to cutting (Jones and Sullivan 1985). Contact-molded glass also differs from press-molded glass in that the exterior and interior of the vessel will portray parallel patterns. The interior of the vessel is also generally much more diffuse towards the base.

Three pieces of glass tableware were recovered during the current survey. Of the identifiable fragments, all were press molded (n = 3). All of these fragments were also clear glass dating after 1864 (Jones 2000).

## Closures (n = 4)

Bottle closures serve both to prevent the spilling of a bottle's contents and to protect a bottle's contents from contamination and evaporation (Berge 1980). Closures have been used almost as long as animal skins and bottles have been employed to contain liquids. Closures range from a utilitarian piece of paper or cloth stuffed into the mouth of a bottle to a delicately crafted crystal stopper for a decanter. There are three primary closure types: caps, stoppers, and seals (Berge 1980).

Caps are secured to a bottle by overlapping the outside edge of the finish or mouth. Common cap types include external screw, lugs, crown, and snap-on. External screw caps were first introduced in the midnineteenth century (Jones and Sullivan 1985; Toulouse 1977). External thread caps were attached to bottles by means of grooves in the cap that screwed down on continuous glass threads on the finished exterior of a bottle. External thread caps were first produced using metal in 1858 (Jones and Sullivan 1985; Toulouse 1977). Advances in technology led to the introduction of a Bakelite external thread cap around 1922 (Berge 1980; Meikle 1995), an aluminum shell roll-on cap in 1924 (Berge 1980; Rock 1980), and modern plastic caps in the mid-1930s (Meikle 1995). Examples of the external thread cap include canning jar, mayonnaise jar, and pickle jar lids.

The crown cap was patented on February 2, 1892, by William Painter of Baltimore, Maryland (Rock 1980). The crown cap was placed over the finish and then crimped around a lip or groove in the finish to seal the container. This closure was lined with cork from 1892 until circa 1965 (IMACS 2001; Riley 1958; Rock 1980). Crown caps with composition liners appeared in 1912, and both cork and composition liners were gradually phased out following the introduction of the plastic liner in 1955 (IMACS 2001; Riley 1958). The majority of commercially produced glass soda bottles have crown cap closures.

Stoppers, the second major closure type, are secured to the finish interior of bottles, usually by forcing a portion of the stopper into the bore of the finish. Stopper types include cork, glass, inside screw, porcelain-top, Hutchinson Spring, Electric, Pittsburgh, and Lightning. Cork stoppers were the most common historic closure type.

Most glass stoppers use ground or roughened tapered stems along with a roughened finish inside to seal bottles. The "modern" ground and tapered glass stopper was developed in Europe around 1725 (Holscher 1965). Glass stoppers came in many shapes, sizes, and styles and were used as closures in many different types of bottles. As with the cork stopper, the glass stopper was phased out in the 1920s with the advent of the crown cap closure (Berge 1980; Jones and Sullivan 1985).

Seal closures utilized the vacuum on the interior of the glass container. The heating and then cooling of the bottle's contents created the vacuum. Seal closures, although dating back to 1810, did not become popular until the mid-twentieth century. These closures were most often used in food jars (Berge 1980). There were several types of seal closures including Phoenix, Sure Seal, Giles, spring seal, and disc seal.

The disc seal was used as early as 1810 by Nicholas Appert (Berge 1980). John L. Mason used this type of closure on his patented fruit jar in 1858 (Berge 1980). Mason's closure was

made of zinc and was held in place with an exterior screw cap ring. Unfortunately, the zinc reacted with the contents of the jars, giving the contents an unpleasant metal taste (Jones and Sullivan 1985). Glass liners were then developed and added to the disc around 1869 by Lewis R. Boyd (Toulouse 1969, 1977). These liners prevented the zinc from reacting with the contents of the jar. To aid in opening, Boyd added a handle to the disc circa 1900 (Toulouse 1977). Both of these disc seal types were used until around 1950 (Jones and Sullivan 1985; Toulouse 1969, 1977). In 1865, the Kerr two piece seal was patented. This system utilized a metal seal disc held in place by an exterior screw cap with no center. This seal and cap type system is still in use today.

The closure artifacts recovered from the current project date from the 1860s to the last half of the twentieth century. Three aluminum screw-on caps were recovered dating after 1924 (Lief 1965:29). One mason zinc canning jar lid with a glass lid liner was also recovered dating from 1869 to 1950 (Toulouse 1977:91,96).

## Personal Group (N = 3)

The personal group includes artifacts assumed to have belonged to individuals. This category of artifacts includes health and grooming items, jewelry and beads, coins, music and art items, personal items, toys, and games. Tobacco products are also subsumed into this category. Artifacts related to health and grooming (n = 1), personal items (n = 1), and toys (n = 1) were recovered from the project area.

One health and grooming item was identified as an opaque white glass cosmetics jar container dating from 1830 to 1960 (Husfloen 1992:163). One nickel-plated mini miners flashlight was also recovered. This flashlight was marked "CHALLENGE" and was dated circa 1933 (Flashlight Museum 2009). The toy artifact was identified as a two-part iron/steel toy train car and was not assigned a specific date.

### Discussion

There were 24 historic artifacts recovered during the current phase I survey. The material collected is discussed in detail above and summarized below in the site discussion.

Only one architectural group item was recovered from this site. This item was identified as a cut marble fragment and was not assigned a specific date.

The domestic group contained container glass (n = 9), ceramics (n = 2), container closures (n = 4), and glass tableware (n = 3). The ceramic inventory consisted of ironstone (n = 1) and porcelain (n = 1).

The ironstone recovered was identified as a decal-decorated plate with gilt accents. This plate fragment dated from 1930 to 1958, due to an identifiable maker's mark on the base utilized by the Pope-Gosser China Company. The porcelain recovered was identified as an overglaze decorated decal platter dating after 1911. This platter base also contained an identifiable maker's mark utilized by the Noritake China Company.

Container glass included only ABM glass. The ABM (n = 9) was amber, clear, cobalt, and light green. Attributes included Individual Section molds, Owens molds, embossing, and external thread finishes. Nine vessels were identified in the ABM assemblage, including four commercial containers, one liquor bottle, three medicine bottles, and one miscellaneous bottle. Three maker's marks were noted in the ABM category. Two of these were utilized by the Owens Illinois Glass Company. The first dated from 1929 to 1954 and the other dated from 1940 to 1954. The third maker's mark was used by the Foster-Forbes Glass Company after 1929. Unless otherwise noted, the remaining ABM glass dated after 1903.

Container closures included three aluminum shell screw-on caps dating after 1924 and one mason zinc canning jar lid with a glass liner dating from 1869 to 1950. Glass tableware (n=3) was all identified as press molded. All of these sherds were also clear. Three vessels were identified in the glass

tableware assemblage, including two bowls and one tumbler.

The clothing group was represented by two artifacts. Both of these were rubber shoe heel fragments, and neither was assigned a specific date.

Three personal items were recovered during the current survey. One health and grooming item was identified as an opaque white glass cosmetics jar dating from 1830 to 1960. One personal item was also recovered and was identified as a nickel-plated mini miner's flashlight dating after 1933. One iron/steel toy train car was also recovered but was not assigned a specific date.

Artifacts, such as the glass tableware, recovered from 15Jf763 were manufactured as early as the 1860s, but they were still commonly used until the early to midtwentieth century. Other artifacts in the assemblage, such as the ABM glass, decaldecorated ironstone, and container closures, date to the early to mid-twentieth century. Historic maps of this site indicate that before the 1950s, a structure was present close to this site: however, a structure was never mapped at this exact location. The material recovered from this site was located at the end of a road that was delineated on historic maps and may be associated with a trash dump rather than an actual structure, which is supported by the fact that much of the recovered and observed artifact assemblage consisted of whole (or nearly whole) glass and ceramic vessels. When the power plant began production in 1954, the nearby former structure was likely demolished, and much of its debris may have been dumped at 15Jf763. Based on the material recovered from this site, it is probable that the artifacts are the remains of either the former structure or a contemporaneous trash dump. The artifact types are consistent with a domestic occupation dating to this time (the first half of the twentieth century), and no structures were indicated within the project area.

## VI. RESULTS

During the course of the current survey, one previously unrecorded archaeological site (15J1763) was documented. A description of this site is presented below, and the location of the site is depicted in Figure 2.

## Site 15Jf763

Elevation: 134.5 m (423.0 ft) AMSL

Component(s): historic

Site type(s): farmstead/or historic residence

Size: 1,800 sq m (19,376 sq ft)

Distance to nearest water: 40 m (131 ft)

Direction to nearest water: east

Type and extent of previous disturbance: 76-99

percent disturbed, probably by bulldozing

Topography: Terrace

Vegetation: Mixed hardwood forest Ground Surface Visibility: 50-90 percent

Aspect: East

Recommended NRHP status: not eligible

## **Site Description**

Site 15J1763 was the remains of a historic residence dating from the early to mid-twentieth

century. The site was located approximately 607 m (1,992 ft) north-northeast of the intersection of KY 1934 (Cane Run Road) and Lower Hunters Trace near the community of Riverside Gardens. 1,405 m (4,608 ft) southwest of the intersection of Camp Ground Road and Lees Lane, and 588 m (1,929 ft) due east from the guard house at the Cane Run Generating Plant. It was identified in a strip of forest on a level terrace above Garrison Ditch at an elevation of 134 m (440 ft) AMSL.

Vegetation consisted of light forest with little undergrowth, and ground surface visibility was approximately 51-90 percent because of the vegetation and leaf litter (Figure 11). There appeared to be a disused farm road immediately west of the site (based on a layer of gravel in the STPs in that area, later confirmed with historic maps). The site was identified by the presence of cultural materials on the ground surface (Figure 12), 15Jf763 measured 60 m (197 ft) north-south by 30 m (100 ft) east-west, and covered 1,800 sq. m (19,376 sq ft). Site boundaries were defined by the lack of cultural material to the north, south, and west, and by Garrison Ditch to the east (it is probable the site extends outside the project boundary in that direction, as some artifacts were found on the slope).



Figure 11. Overview of Site 15Jf763.

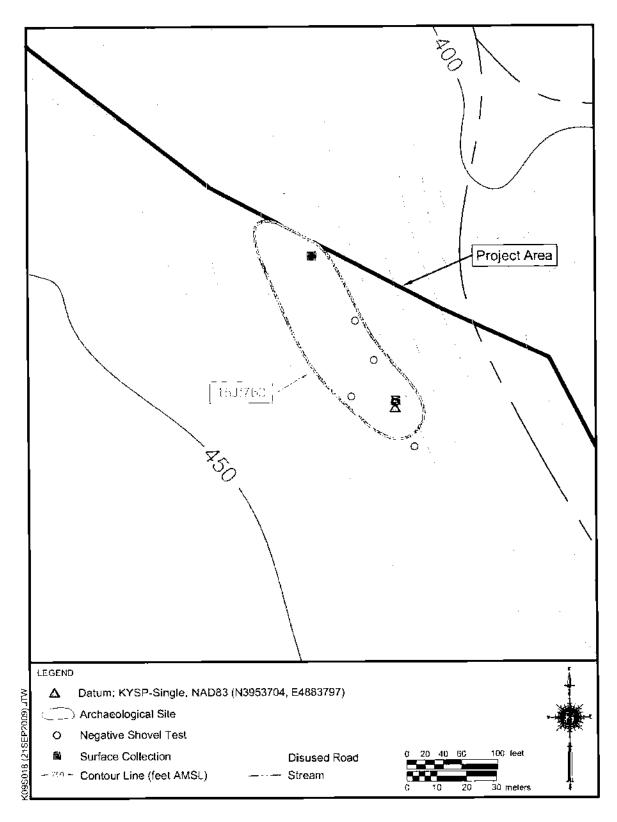


Figure 12. Plan view of Site 15Jf763.

## **Investigation Methods**

All artifacts collected were located on the surface of the ground, which was systematically walked (at intervals no greater than 3 m). Any observed artifacts were flagged and their locations plotted on a siteplan map. Because all of the artifacts were recovered from a small area, they were bagged as a general surface collection.

Five screened shovel tests were excavated at the site (Figure 12). Shovel tests were excavated among the surface artifacts and to their west, near the location of a historical map structure. None of the shovel tests produced cultural material. The positions of all artifact groups, including those not returned to the lab (e.g., the rusticated concrete blocks and dressed building stone), were recorded with the GPS.

## **Depositional Context**

Urban Land – Udorthents series soils were mapped for the site. The soil profile consisted of a shallow Ap horizon of dark brown (10YR 3/3) clay loam to depths between 2 and 10 cm below ground surface (bgs) followed by a subsoil of yellowish brown (10YR 5/4) silty clay loam. Because ground surface visibility was good, only limited shovel testing was conducted to assess soil stratigraphy and site integrity. Five shovel tests were excavated within the site boundaries at 10-m intervals. Cultural materials were only recovered from the ground surface and were not found in any of the shovel tests (Figure 13).

The soils at Site 15Jf763 appeared to have been severely depleted through agricultural use, land clearance, and industrial modification. The Ap at the site consisted primarily of subsoil (former B and C horizons). All artifacts at the site were recovered from the Ap horizon and, as such, have poor integrity.

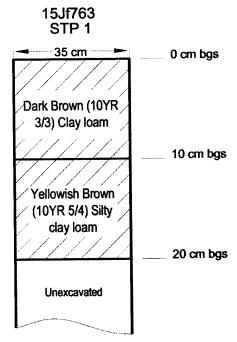


Figure 13. Representative soil profile from Site 15Jf763.

#### **Artifacts**

All of the artifacts recovered from Site 15Jf763 were historic, dating primarily to the first half of the twentieth century (Table 3). Historic materials noted, but not recovered, consisted of architectural materials such as rusticated concrete block; marble paving slabs approximately 4 cm (1.5 in) thick of a type that would be used for stair treads; and dressed building stone in various shapes, including a window sill or door lintel approximately 10-x-15 cm (4-x-6 in) in section and .8 m (2.5 ft) long. Domestic artifacts recovered included container glass, ceramic tableware, toys, and shoe heels (see Figure 10 and front cover).

Table 3.	Historic	Artifacts	from	Site	15J1	763.
----------	----------	-----------	------	------	------	------

Provenience	Class	Туре	Count	Min Date	Max Date
N1000 E1000	Ceramics	Ironstone	1	1930	1958
N1000 E1000	Ceramics	Porcelain	1	1911	
N1000 E1000	Container Closures	Commercial Containers	3	1924	
N1000 E1000	ABM	Clear glass	1	1929	1954
N1000 E1000	ABM	Clear glass	1	1940	1954
N1000 E1000	ABM	Amber glass	1	1929	
N1000 E1000	ABM	Light green glass	1	1925	
N1000 E1000	ABM	Clear glass	4	1903	
N1000 E1000	ABM	Cobalt glass	1	1903	
N1000 E1000	Container Closures	Home Canning Jars	1	1869	1950
N1000 E1000	Glass Tableware	Press mold	3	1864	
N1000 E1000	Construction Materials	Marble (collected)	1		
N1000 E1000	Construction Material	Marble (not collected)	20*		
N1000 E1000	Footwear	Sole / Heel	2		
N1000 E1000	Personal Items	Other	1	1933	
N1000 E1000	Health and Grooming	Cosmetic container	1	1830	1960
N1000 E1000	Toys and Games	Vehicle: non-motorized	1		
N1005 E1005	Construction Materials	Dressed Stone Blocks	10*		
N1010 E1000	Construction Materials	Marble	15*		
N1030 E1000	Construction Materials	Dressed Stone Sill	1		
N1070 E990	Construction Materials	Rusticated Concrete Block	8*		

<sup>\*</sup>Approximate Count

## Summary and National Register Evaluation

Based on the 1950 Kosmosdale 15-min series map (USGS), two historic structures dating circa 1900–1960 were located in close proximity to these finds, and it is probable that these materials came from one of these structures. Alternatively, the materials may simply have been dumped at the end of the disused road, although their distribution and the number of intact artifacts argue against the dump hypothesis. In either event, the materials were all found on the surface, and there was no evidence for subsurface features.

Site 15Jf763 is not considered to have the potential to provide important information about local or regional history and is not eligible for the NRHP (Criterion D), and no further work is recommended. It is unlikely that further investigation of Site 15Jf763 would produce information beyond that recorded during the current survey. The remains have poor depositional integrity—all artifacts were confined to plow zone contexts. In addition, there is no evidence suggesting the potential for sub–plow zone features to be located at the site.

# VII. CONCLUSIONS AND RECOMMENDATIONS

Note that a principal investigator or field archaeologist cannot grant clearance to a project. Although the decision to grant or withhold clearance is based, at least in part, on the recommendations made by the field investigator, clearance may be obtained only through an administrative decision made by the lead federal agency in consultation with the State Historic Preservation Office (the Kentucky Heritage Council [KHC]).

The archaeological survey for the borrow area, settling ponds, and flyash storage area at the LG&E Cane Run Generating Plant in Jefferson County, Kentucky, resulted in the discovery of one previously unrecorded archaeological site. Site 15Jf763 is not considered eligible for the NRHP. The site, a scatter of historic artifacts and building materials, produced few artifacts and demonstrated poor integrity and lack of research potential; no further work is recommended. Because no sites listed in, or eligible for, the NRHP will be affected by the proposed project, cultural resource clearance for the borrow area, settling ponds, and flyash storage area is recommended.

If any previously unrecorded archaeological materials are encountered during construction activities, the KHC should be notified immediately at (502) 564-6662. If human skeletal material is discovered, construction activities should cease, and the KHC, the local coroner, and the local law enforcement agency must be notified, as described in KRS 72.020.

## REFERENCES CITED

#### Adjei-Barwuah, Barfuor

1972 Socio-Economic Regions in the Louisville Ghetto. Unpublished Ph.D. dissertation. Department of Geography, Indiana University, Bloomington. 1973 facsimile ed. University Microfilms, Ann Arbor, Michigan.

Adovasio, James M., David R. Pedler, John Donahue, and Robert Stuckenrath

1998 Two Decades of Debate on Meadowcroft Rockshelter. *North American Archaeologist* 19:317–341.

#### Anderson, David G.

2001 Climate and Culture Change in Prehistoric and Early Historic Eastern North America. *Archaeology of Eastern North America* 29:143–186.

#### Anderson, Orin K.

1975 Climate of Kentucky. *Climatography* of the United States No. 60:15. United States Department of Commerce, Weather Bureau, Washington, D.C.

Applegate, Darlene

2008 Woodland Period. In *The Archaeology* of Kentucky: An Update, Vol. 1, edited by David Pollack, pp. 339–604. State Historic Preservation Comprehensive Plan Report No. 3. Kentucky Heritage Council, Frankfort.

Baerreis, David A., Reid A. Bryson, and John E. Kutzbach

1976 Climate and Culture in the Western Great Lakes region. *Midcontinental Journal of Archaeology* 1:39–58.

Baugher-Perlin, Sherene

1982 Analyzing Glass Bottles for Chronology, Function, and Trade Networks. In *Archeology of Urban America*, edited by Roy S. Dickens, pp. 250–291. Academic Press, New York.

#### Berge, Dale L.

1980 Simpson Springs Station Historical Archaeology in Western Utah 1974– 1975. Cultural Resource Series Number 6. Bureau of Land Management, Salt Lake City, Utah.

#### Bergman, G. T.

1858 Map of Jefferson County, Kentucky. G. T. Bergmann, Louisville.

#### Boger, L. A.

1971 *The Dictionary of World Pottery and Porcelain.* Charles Scribner and Sons, New York.

#### Braun, E. Lucy

1950 Deciduous Forest of Eastern North America. Blakiston, Philadelphia.

#### Buckley, Francis

1934 Old English Glass. The Birmingham Glass Pinchers. *Glass* 11(May):187–188.

#### Cameron, Elisabeth

1986 Encyclopedia of Pottery and Porcelain, 1800–1960. Facts on File Publications, New York.

#### Chapman

1971 A report of an Archaeological Survey of the Soutwestern Jefferson County, Kentucky, Local Flood Protection Project. University of Louisville Archaeological Survey. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

1975 Archaeological Report on Investigations for the West County Expansion Program of the Louisville Kentucky Jefferson County, Metropolitan Sewer District. Ohio Archaeological Research Valley Lexington, Kentucky. Associates. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

#### Clark, Thomas D.

1992 A History of Kentucky. Revised and 6th ed. Jesse Stuart Foundation, Ashland, Kentucky. Originally published 1937, Prentice-Hall, New York.

#### Collard, Elizabeth

1967 Nineteenth-Century Pottery and Porcelain in Canada. McGill University Press. Montreal, Canada.

#### Collins, Ernest

1950 The Political Behavior of the Negroes in Cincinnati, Ohio and Louisville, Kentucky. Unpublished Ph.D. dissertation. Department of Political Science, University of Kentucky, Lexington.

#### Cummings, Scott, and Michael Price

1997 Race Relations and Public Policy in Louisville: Historical Development of an Urban Underclass. *Journal of Black Studies* 27(5):615–649.

#### Davies, Gavin R.

2006 A Cultural Resource Survey of the Proposed Triplett Woods Development in Louisville, Jefferson County, Kentucky. Contract Publication Series 06-032. Cultural Resource Analysts, Inc., Lexington, Kentucky.

#### Delcourt, Hazel R.

1979 Late Quaternary Vegetational History of the Eastern Highland Rim and Adjacent Cumberland Plateau of Tennessee. *Ecological Monographs* 49(3):255–280.

#### Delcourt, Paul A., and Hazel R. Delcourt

- 1981 Vegetation Maps for Eastern North America: 40,000 BP to the Present. In Geobotany II edited by Robert C. Romans, pp. 123–165. Plenum Publishing, New York.
- 1987 Long Term Forest Dynamics of the Temperate Zone: A Case Study of Late-Quaternary Forests in Eastern North America. New York, Springer-Verlag.
- 1997 Report of Paleoecological Investigations, Cliff Palace Pond,

Jackson County, Kentucky, in the Daniel Boone National Forest. Report submitted to U.S. Forest Service, Daniel Boone National Forest, Stanton Ranger District, Stanton, Kentucky.

#### Denker, Ellen, and Bert Denker

1982 The Warner Collector's Guide to North American Pottery and Porcelain. Warner Books, New York.

#### Denton, George H., and Wibjorn Karlen

1973 Holocene Climatic Variation: Their Pattern and Possible Cause. *Quaternary Research* 3:155–205.

#### Dillehay, Thomas D.

1997 Monte Verde, A Late Pleistocene Settlement in Chile: The Archaeological Context and Interpretation, Vol. II. Smithsonian Institution Press, Washington, D.C.

#### Dodd, Arthur Edward

1964 *Dictionary of Ceramics*. Philosophical Library Inc., New York.

#### Engelhardt, Donald W.

- 1960 A Comprehensive Study of Two Early Wisconsin Bogs in Indiana. *Proceedings of the Indiana Academy of Science* 69:110–118.
- 1965 A Late Glacial Postglacial Pollen Chronology for Indiana. *American Journal of Science* 263:410–415.

#### Fay, Robert P.

1986 Archaeological Investigations at Liberty Hall, Frankfort, Kentucky. Kentucky Heritage Council, Frankfort, Kentucky.

Fitting, James E., Jerry DeVisscher, and Edward J. Wahla

1966 The Paleo-Indian Occupation of the Holcombe Beach. Anthropological Papers No. 27. Museum of Anthropology, University of Michigan, Ann Arbor.

#### Flashlight Museum

2009 Challenger Flashlight. Electronic document, www.flashlightmuseum.com, accessed August 24, 2009.

Fredlund, Glen G.

1989 Holocene Vegetational History of the Gallipolis Locks and Dam Project Area, Mason County, West Virginia. Contract Publication Series 89-01. Cultural Resource Analysts, Inc., Lexington, Kentucky.

Fritts, Harold C., G. Robert Lofgren, and Geoffrey A. Gordon

1979 Variation in Climate Since 1602 as Reconstructed from Tree-rings. *Quaternary Research* 12:18–46.

Gates, William C., Jr., and Dana E. Ormerod 1982 The East Liverpool Pottery District: Identification of Manufacturers and Marks. *Historical Archaeology* 16(1–2):1–358.

Geier, Clarence R.

1992 Development and Diversification:
Cultural Directions During the Late
Woodland/Mississippian Period in
Eastern North America. In Middle and
Late Woodland Research in Virginia: A
Synthesis, edited by Theodore R.
Reinhart and Mary Ellen N. Hodges, pp.
277–301. Archeological Society of
Virginia, Special Publication 29,
Richmond.

Glover, John T., Careylyn Glover and Jared Funk

1977 An Archaeological Survey of the Proposed Pond Creek Interceptor Sewer Line, PC-4 to PC-9, in South Jefferson County, Kentucky. Archaeological Services, Inc. Lexington, Kentucky. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

Godden, Geoffrey A.

1964 An Illustrated Encyclopedia of British Pottery and Porcelain. Bonanza Books, New York.

Goodyear, Albert C., and K. Steffy

2003 Evidence of a Clovis Occupation at the Topper Site, 38AL23, Allendale County, South Carolina. *Current Research in the Pleistocene* 20:23–25.

Granger, Joseph E. and Edward E. Smith.

2006 A Phase I Archaeological Investigation of the Proposed Greenbelt Market Center Project in Southwestern Jefferson County, Kentucky. ARCS Ventures, Inc. Louisville, Kentucky. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

Granger, Joseph E. and Phillip J. DiBlasi

1975 An Archaeological Reconnaissance of the Riverport Industrial Park, Jefferson County, Kentucky. University of Louisville Archaeological Survey. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

1976 An Archaeological Reconnaissance of the Jefferson Freeway Connector/ Extension; Jefferson County, Kentucky. University of Louisville Archaeological Survey. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

Granger, Joseph E., Phillip J. DiBlasi, and Bobbie K. Braunbeck.

1976 An Archaeological Reconnaissance of the Cane Run Widening Project, Jefferson County, Kentucky. University of Louisville Archaeological Survey. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

Griffin, James B.

1961 Some Correlations of Climatic and Cultural Change in Eastern North American Prehistory. *Annals of the New York Academy of Sciences* 95:710–717.

1978 The Midlands and Northeastern United States. In *Ancient Native Americans*, edited by Jesse D. Jennings, pp. 221–280. W. H. Freeman, San Francisco.

Grove, Jean M.

1988 The Little Ice Age. Metheun, London.

Hafendorfer, Ken

1991 *Perryville: Battle for Kentucky.* KH Press, Louisville, Kentucky.

Hammack, James W., Jr.

1992 War of 1812. In *The Kentucky Encyclopedia*, edited by John E. Kleber,

pp. 928–930. University Press of Kentucky, Lexington.

Henderson, A. Gwynn, Cynthia E. Jobe, and Christopher A. Turnbow

1986 Indian Occupation and Use in Northern and Eastern Kentucky During the Contact Period (1540–1795): An Additional Investigation. Ms. on file, the Kentucky Heritage Council, Frankfort.

Henderson, A. Gwynn, David Pollack, and Christopher A. Turnbow

1992 Chronology and Cultural Patterns. In Fort Ancient Cultural Dynamics in the Middle Ohio Valley, edited by A. Gwynn Henderson, pp. 253–279. Monographs in World Archaeology No. 8. Prehistory Press, Madison, Wisconsin.

Holscher, Harry Heltman

1965 Hollow and Specialty Glass:
Background and Challenge. Reprint
from the *Glass Industry*, Volume 46,
June–November. Owens-Illinois,
Toledo, Ohio.

Hu, Feng Sheng, Dirk Slawinski, Herbert E. Wright, Jr., Emi Ito, Robert G. Johnson, Kerry R. Kelts, Reed F. McEwan, and Amy Boedigheimer

1999 Abrupt Changes in North American Climate During Early Holocene Times. *Nature* 400:437–440.

Hunt, George T.

1940 The Wars of the Iroquois: A Study in Intertribal Trade Relations. University of Wisconsin Press, Madison.

Hunter, William A.

1978 History of the Ohio Valley. In *Northeast*, edited by Bruce G. Trigger, pp. 588–593. Handbook of North American Indians, Vol. 15, William T. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Husfloen, Kyle

1992 Collector's Guide to American Pressed Glass 1825–1915. Wallace-Homestead Book Company, Radnor, Pennsylvania. IMACS User's Guide

2001 Intermountain Antiquities Computer System Users Guide. Revised. University of Utah, Bureau of Land Management, U.S. Forest Service. Originally published 1984.

Jefferies, Richard W.

2008 Archaic Period. In *The Archaeology of Kentucky: An Update, Vol. 1*, edited by David Pollack, pp. 193–338. State Historic Preservation Comprehensive Plan Report No. 3. Kentucky Heritage Council, Frankfort.

Jones, Olive

2000 A Guide to Dating Glass Tableware: 1800 to 1940. In *Studies in Material Culture*, edited by Karlis Karklins, pp.141–232. The Society for Historical Archaeology, Pennsylvania.

Jones, Olive, and Catherine Sullivan

1985 The Parks Canada Glass Glossary for the Description of Containers, Tableware, Flat Glass, and Closures. Studies in Archaeology, Architecture and History. National Historic Parks and Sites Branch, Parks Canada.

Kentucky Department of Highways, Division of Planning

1937 Highway and Transportation Map of Jefferson County, Kentucky. Prepared in cooperation with the United States Department Agriculture, Bureau of Public Roads, Washington, D.C.

Kentucky State Highway Department

1953 General Highway Map of Jefferson County, Kentucky. Prepared in cooperation with the United States Department of Commerce, Bureau of Public Roads, Washington, D.C.

Kerr, Jonathan P.

1994a An Archaeological Survey of a Proposed Shively Post Office Branch Location, Jefferson County, Kentucky. Contract Publication Series 94-73. Cultural Resource Analysts, Inc., Lexington, Kentucky.

- 1994b An Archaeological Survey of a Proposed Location for the Shively Post Office in Jefferson County, Kentucky.
  Contract Publication Series 94-73.
  Cultural Resource Analysts, Inc., Lexington, Kentucky.
- Kleber, John E., ed.
  - 1992 The Kentucky Encyclopedia.
    University Press of Kentucky,
    Lexington.
- Klippel, Walter E., and Paul W. Parmalee 1982 Diachronic Variation in Insectivores from Cheek Bend Cave, and Environmental Change in the Midsouth. Paleobiology 8:447–458.
- Kovel, Ralph, and Terry Kovel 1986 Kovels' New Dictionary of Marks. Crown Publishers, New York.
- Lehner, Lois
  - 1980 Complete Book of American Kitchen and Dinner Wares. Wallace-Homestead Books, Des Moines, Iowa.
- Lief. Arnold
  - 1965 A Close-Up of Closures. Glass Container Manufacturers Institute, New York.
- Lofstrom, Edward U., Jeffrey P. Tordoff, and Douglas C. George
  - 1982 A Seriation of Historic Earthenwares in the Midwest, 1780–1870. *Minnesota Archaeologist* 41(1):3–29.
- McAvoy, James M., and Lynn D. McAvoy 1997 Archaeological Investigations of Site 44SX202, Cactus Hill, Sussex County, Virginia. Research Report Series No. 8. Virginia Department of Historic Resources, Richmond.
- McBride, Kim A. and W. Stephen McBride 2008 Historic Period. In *The Archaeology of Kentucky: An Update, Vol. 2*, edited by David Pollack, pp. 903–1132. State Historic Preservation Comprehensive Plan Report No. 3. Kentucky Heritage Council, Frankfort.
- McConnell, Michael N.

- 1992 A Country Between: The Upper Ohio Valley and Its Peoples, 1724–1774. University of Nebraska Press, Lincoln.
- MacDonald, George F.
  - 1968 Debert: a Paleo-Indian Site in Central Nova Scotia. Anthropology Papers No. 16, National Museum of Canada, Quebec City, Quebec.
- McDowell, Robert Emmett
  - 1962 City of Conflict: Louisville in the Civil War, 1861–1865. Louisville Civil War Round Table, Louisville, Kentucky.
- McGrain, Preston and James C. Currens
  1978 *Topography of Kentucky*. Kentucky
  Geological Survey. University of
  Kentucky, Lexington. Series X. Special
  Publication 25.
- Maggard, Greg J. and Kary L. Stackelbeck
  2008 Paleoindian Period. In *The*Archaeology of Kentucky: An Update,
  Vol. 1, edited by David Pollack, pp.
  109–192. State Historic Preservation
  Comprehensive Plan Report No. 3.
  Kentucky Heritage Council, Frankfort.
- Majewski, Teresita, and Michael J. O'Brien 1987 The Use and Misuse of Nineteenth-Century English and American Ceramics in Archaeological Analysis. In Advances in Archaeological Method and Theory, Volume 11, edited by Michael J. Schiffer, pp 97–209. Academic Press, New York.
- Mankowitz, Wolf, and Reginald G. Haggar 1957 The Concise Encyclopedia of English Pottery and Porcelain. Hawthorne Books, New York.
- Martens, Richard E., Brad Koldehoff, Juliet E. Morrow, and Toby A. Morrow
  - 2004 The Surface Collection from the Martens Site, 23SL222. *Missouri Archaeologist* 65:1–44.
- Maxwell, Jean A., and Margaret B. Davis
  1972 Pollen Evidence of Pleistocene and
  Holocene Vegetation on the Allegheny
  Plateau, Maryland. *Quaternary*Research 2:506–530.

#### Meikle, Jeffrey L.

1995 American Plastic: A Culture History. Rutgers University Press, New Brunswick, New Jersey.

#### Miller, C. Eugene

1990 The Contribution of German Immigrants to the Union Cause in Kentucky. Filson Club History Quarterly 64(4):462–478.

#### Miller, George L., and Catherine Sullivan

1984 Machine-Made Glass Containers and the End of Production for Mouth-Blown Bottles. *Historical Archaeology* 18(2):83–96.

#### Miranda, Jose Antonio

2004 American Machinery and European Footwear: Technology Transfer and International Trade, 1860-1939. *In Business History* 46(2):195-218.

#### Mocas, Stephen T.

1976 Excavations at Arrowhead Farm (15Jf237). University of Louisville Archaeological Survey. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

#### Morrow, Juliet E.

1998 Excavations at the Martens Site, 23SL222. *Missouri Archaeological Society Quarterly* 15(1):4–7.

2000 A Clovis Camp at the Martens Site. Central States *Archaeological Journal* 47:84–85.

#### National Park Service

1983 Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. *Federal Register* 48(190): 44716–44742. United States Department of the Interior, Washington, D.C.

#### Nickell, Joe

1992 Daniel Boone. In *The Kentucky Encyclopedia*, edited by John E. Kleber, pp. 96–98. University Press of Kentucky, Lexington.

Niquette, Charles M., and Teresa K. Donham 1985 Prehistoric and Historic Sites Archeology in the Proposed Yatesville Reservoir, Lawrence County, Kentucky.
Contract Publication Series 85-13.
Cultural Resource Analysts, Inc.,
Lexington, Kentucky.

#### O'Donnell, James H.

1992 Shawnee Indians. In *The Kentucky Encyclopedia*, edited by John E. Kleber, pp. 814–815. University Press of Kentucky, Lexington.

#### Orser, Charles E.

1988 The Material Basis of the Postbellum Tenant Plantation. The University of Georgia Press, Athens, Georgia.

#### Pollack, David

2008 Mississippi Period. In *The Archaeology of Kentucky: An Update, Vol.* 2, edited by David Pollack, pp. 605–738. State Historic Preservation Comprehensive Plan Report No. 3. Kentucky Heritage Council, Frankfort.

#### Pollack, David, and A. Gwynn Henderson

1984 A Mid-Eighteenth Century Historic Indian Occupation in Greenup County, Kentucky. In *Late Prehistoric Research in Kentucky*, edited by David Pollack, Charles D. Hockensmith, and Thomas N. Sanders, pp.1–24. Kentucky Heritage Council, Frankfort.

#### Reidhead, Van A.

1984 A Reconstruction of the Presettlement Vegetation of the Middle Ohio Valley Region. In Experiments and Observations on Aboriginal Wild Plant Food Utilization in Eastern North America, edited by Patrick J. Munson, pp. 386–426. Indiana Historical Society, Indianapolis.

#### Rennick, Robert M.

1984 *Kentucky Place Names*. University Press of Kentucky, Lexington.

#### Revi. Albert C.

1964 American Pressed Glass and Figure Bottles. Thomas Nelson and Dons, New York.

#### Riley, John J.

1958 A History of the American Soft Drink Industry 1807–1957. American Bottlers of Carbonated Beverages, Washington, D. C.

Ritchie, William A., and Robert E. Funk 1973 Aboriginal Settlement Patterns in the Northeast. Memoir 20, New York State Museum and Science Service, Albany

#### Rock, James T.

1980 American Bottles: A Few Basics.

Manuscript on file at the Klamath
National Forest, Region B, United
States Department of Agriculture.

#### Sanders, Thomas N. (editor)

2001 Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports. Kentucky State Historic Preservation Office, Kentucky Heritage Council, Frankfort.

Schenian, Pamela A. and Stephen T. Mocas
1997 A Phase I Archaeological Survey of
the Cemetery and Buffer Zone within
the Proposed Williams Middle School
Tract, Jefferson County, Kentucky.
Consulting Archaeologist, Louisville,
Kentucky. Manuscript on file, Office of
State Archaeology, Lexington,
Kentucky.

#### Schwartz, Douglas W.

1967 Conceptions of Kentucky Prehistory, A
Case Study in the History of
Archaeology. Studies in Anthropology,
No. 6, University of Kentucky,
Lexington.

#### Shane, Linda C. K.

1994 Intensity and Rate of Vegetation and Climatic Change in the Ohio Region between 14,000 and 9,000 14C YR BP. In *The First Discovery of America: Archaeological Evidence of the Early Inhabitants of the Ohio Area*, edited by William S. Dancey, pp. 7–22. The Ohio Archaeological Council, Columbus.

Shane, Linda C. K., Gordon G. Snyder, and Katherine H. Anderson

2001 Holocene Vegetation and Climate Changes in the Ohio Region. In *Archaic Transitions in Ohio and Kentucky Prehistory*, edited by Olaf H. Prufer, Sara E. Pedde, and Richard S. Meindl, pp. 11–55. Kent State Press, Kent, Ohio.

#### Share, Allen J.

1982 Cities in the Commonwealth: Two Centuries of Urban Life in Kentucky. University Press of Kentucky, Lexington.

#### Smith, Bruce D.

1978 Variation in Mississippian Settlement Patterns, In *Mississippian Settlement* Patterns, edited by Bruce D. Smith, pp. 479–503. Academic Press, New York.

#### Soil Survey Staff

1999 Soil Taxonomy, A Basic System of Soil Classification for Making and Interpreting Soil Surveys. 2nd ed. Agricultural Handbook Number 436. U. S. Department of Agriculture, Natural Resource Conservation Service, Soil Survey Division, Washington, D.C.

2009 Official Soils Series Descriptions.

Electronic document,
http://soils.usda.gov/technical/classificat
ion/ods/index.html, accessed July 2009.
United Staes Department of AgricultureNatural Resource Conservation Service,
Soil Survey Division, Washington, D.C.

#### South, Stanley

1977 Method and Theory in Historical Archaeology. Academic Press, New York.

#### Sprague, Roderick

1981 A Functional Classification for Artifacts from 19th and 20th Century Historical Sites. *North American Archaeologist* 2(3):251–261.

#### Stafford, C. Russell

1994 Structural Changes in Archaic Landscape Use in the Dissected Uplands of Southwestern Indiana. *American Antiquity* 59:219–237.

2004 Modeling Soil-Geomorphic Associations and Archaic Stratigraphic Sequences in the Lower Ohio River Valley. *Journal of Archaeological Science* 31:1053–1067.

Stewart-Abernathy, Leslie C.

1986 The Moser Farmstead, Independent But Not Isolated: The Archeology of a Late Nineteenth Century Ozark Farmstead. Arkansas Archeological Survey Research Series No. 26, Fayetteville, Arkansas.

Stone, Richard G.

1992 Lord Dunmore's War. In *The Kentucky Encyclopedia*, edited by John E. Kleber, p. 571. University Press of Kentucky, Lexington.

Struever, Stuart, and Kent D. Vickery

1973 The Beginnings of Cultivation in the Midwest Riverine Area of the United States. *American Anthropologist* 75:1197–1220.

Swann, Brenda M.

2002 Material Culture at Presidio Santa Maria de Galve (1698–1722): Combining the Historical and Archaeological Records. Southeastern Archaeology 21(1):64–78.

Talbert, Charles G.

1992 Ohio Company. In *The Kentucky Encyclopedia*, edited by John E. Kleber, p. 689. University Press of Kentucky, Lexington.

Tankersley, Kenneth B.

1996 Ice Age Hunters and Gatherers. In *Kentucky Archaeology*, edited by R. Barry Lewis, pp. 21–38. University Press of Kentucky, Lexington.

Toulouse, Julian H.

1969 Fruit Jars. Thomas Nelson and Sons, Camden, New Jersey, and Everybody's Press, Hanover, Pennsylvania.

1972 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

1977 Fruit Jars, A Collector's Manual with Prices. Everybody's Press, Inc., Hanover, Pennsylvania.

Turnbow, Christopher and R. C. Allen

1977 An Archaeological Survey and Assessment of Phase II of the West County – Pond Creek Sewer Expansion Program, Jefferson County, Kentucky. Archaeological Services, Inc. of Kentucky. Lexington, Kentucky. Manuscript on file, Office of State Archaeology, Lexington, Kentucky.

United States Geological Survey

1912a Kosmosdale, Kentucky 15-minute series topographic quadrangle. United States Department of the Interior, Washington D.C.

1912b Topography of Jefferson County, Kentucky. In cooperation with the Kentucky Geological Survey.

1950 Kosmosdale, Kentucky 15-minute series topographic quadrangle. United States Department of the Interior, Washington D.C.

1951a Louisville West, Kentucky/Indiana 7.5 minute series topographic quadrangle. United States Geological Survey, Washington, D.C.

1951b Lanesville, Indiana/Kentucky 7.5 minute topographic quadrangle. United States Geological Survey, Washington, D.C.

Wade, Richard C.

1959 The Urban Frontier: The Rise of the Western Cities. Harvard University Press, Cambridge, Massachusetts.

Wagner, Mark, and Mary McCorvie

1992 The Archeology of the Old Landmark.

Nineteenth Century Taverns Along the
St. Louis Vincennes Trace in Southern
Illinois. Illinois Department of
Transportation and the Center for
American Archeology, Kampsville,
Illinois.

Walker, Renee. B., Kandace R. Detwiler, Scott C. Meeks, and Boyce Driskell

2001 Berries, Bones and Blades: Reconstructing Late Paleoindian Subsistence Economies at Dust Cave Alabama. Midcontinental Journal of Archaeology 26:169–197.

Warren, Robert E., and Michael J. O'Brien

1982 Holocene Dynamics. In *The Cannon Reservoir Human Ecology Project: An Archaeological Study of Cultural Adaptations in the Southern Prairie Peninsula*, edited by Michael J. O'Brien, Robert E. Warren, and Dennis E. Lewarch, pp. 71–84. Academic Press, New York.

# Watkins, Lura Woodside

1930 Cambridge Glass 1818 to 1888: The Story of the New England Glass Company. Bramhall House, New York.

Webb, Thompson, III, and Reid A. Bryson 1972 Late and Post Glacial Climate Change in the Northern Midwest, USA: Quantitative Estimates Derived from Fossil Pollen Spectra by Multivariate Statistical Analysis. Quaternary Research 2:70–115.

Webb, Thompson, III, Edward J. Cushing, and Herbert E. Wright, Jr.

1983 Holocene Changes in the Vegetation of the Midwest. In Late Quaternary Environments of the US: Volume 2, edited by Herbert E. Wright, Jr., pp. 142–165. University of Minnesota Press, Minneapolis.

# Wesler, Kit W.

1984 A Spatial Perspective on Artifact Group Patterning Within the Houselot. In Proceedings of the Symposium on Ohio Valley Urban and Historic Archeology, II:37-44.

#### Wetherbee, Jean

1980 A Look at White Ironstone. Wallace-Homestead Book Company, Des Moines, Iowa.

# Whitehead, Donald R.

1973 Late-Wisconsin Vegetational Changes in Unglaciated Eastern North America. *Quaternary Research* 3:621–631.

# Williams, L. A., & Co.

1882 History of the Ohio Falls Cities and Their Counties with Illustrations and Biographical Sketches. Vol. 1. L. A. Williams & Co., Cleveland, Ohio.

Winters, Howard D.

1967 An Archaeological Survey of the Wabash Valley in Illinois. Revised ed. Reports of Investigations No. 10. Illinois State Museum, Springfield.

# Work Projects Administration

1940 Louisville: A Guide to the Falls City.

Writer's Program, Work Projects

Administration, Kentucky. American
Guide Series. M. Barrows and
Company, New York.

# Wright, Herbert E., Jr.

1968 History of the Prairie Peninsula. In *The Quaternary of Illinois: A Symposium in Observance of the Centennial of the University of Illinois*, edited by Robert E. Bergstrom, pp. 78–88. Special Publication No. 14. College of Agriculture, University of Illinois, Urbana.

# Yater, George H.

1987 Two Hundred Years at the Falls of the Ohio: A History of Louisville and Jefferson County. The Filson Club, Louisville.

2001a Louisville: A Historical Overview. In *The Encyclopedia of Louisville*, edited by John Kleber, pp. xv–xxxi. University Press of Kentucky, Lexington.

2001b Guthrie, James. In *The Encyclopedia* of *Louisville*, edited by John Kleber, pp. 362–363. University Press of Kentucky, Lexington.

## Zimmerman, William H.

1966 Soil Survey of Jefferson County, Kentucky. United States Soil Conservation Service, Department of Agriculture, Washington, D.C. (reissued in 1991) **APPENDIX A. SCOPE OF WORK** 

P. Marie	part.			





Page 1 Proposal for Cultural Resource Survey

# **Proposal for Cultural Resource Survey**

May 4, 2009
Submitted to:
Stephen Hall
Stantec Consulting Services, Inc.
350 Missouri Avenue, Suite 100
Jeffersonville, IN 47130-3078

# **Project Identification**

Louisville Gas & Electric Company Coal Storage Areas Cane Run Generating Station, Louisville Jefferson County, Kentucky

# Project Area to be Studied

The proposed expansion of the Cane Run Generating Station on the Ohio River in southwestern Jefferson County consists of an approximately 100+ acre area. The project is in preliminary design stage with most of the elements north and south of Mill Creek Cutoff and east and west of Garrison Ditch southwest of the community of Riverside Gardens.

# **Scope of Services**

The cultural resource investigations to identify archaeological sites and historic structures will be conducted in accordance with current *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* issued by the Kentucky State Historic Preservation Office. For the purposes of this study, the area encompassing the maximum extent of the proposed expansion footprints will be examined for cultural resources. The amount of area requiring intensive field survey may be reduced with additional information on current and past use.

# File Search/Archival Research/APE

A review of the archaeological site files at the Office of State Archeology (SHPO) will be conducted for the proposed expansion plus a two kilometer buffer.

# Field Research

The field investigation will consist of an intensive survey of the 100+ ac of proposed expansion area following standard methods (i.e., pedestrian and shovel test survey). The entire project area will be subject to a visual examination to identify and above ground historic resources. With regard to the survey for archaeological sites, it appears that approximately 40 acres of the area either consists of slopes or has been disturbed by borrow activities and stream channeling as well as existing elements of the Can Run Generating Station facilities. Other areas consist of flat areas above Mill Creek Cutoff and Garrison Ditch (approximately 30 acres) and the Mill Creek Cutoff floodplain (approximately 30 acres). The portions of the project area that cross terrain with good surface visibility (for example

# Cultural Resource Analysts, Inc.

Page 2 Proposal for Cultural Resource Survey

plowed/cultivated fields) or characterized by steep slopes (creek bank) will be subject to pedestrian survey. This entails a walking, visual inspection of the ground surface to identify historic and prehistoric artifacts. Portions of the project above Mill Creek Cutoff and Garrison Ditch that are located on relatively flat terrain with poor surface visibility will have to be shovel tested. This assessment method requires the excavation of screened shovel tests measuring 35 cm in diameter at intervals of 20 m.

Furthermore, depositional environments occur within the project area which are conducive to the preservation of archaeological deposits in deeply buried contexts (greater than can be discovered by standard surficial survey techniques such as pedestrian or shovel test survey). Within the project area, Holocene-age alluvial sediments which occur along the Mill Creek Cutoff would be the focus of this deep testing. It is estimated that approximately 30 acres of alluvial sediments occur within the project area. The floodplain of Mill Creek Cutoff will not be shovel tested because any cultural resources in this location are likely buried by recent sediments. In lieu of shovel testing, deep testing of the floodplain Mill Creek Cutoff will be conducted to determine the presence of buried cultural remains. This will be completed through backhoe trenching. Backhoe trenching is recognized as a useful and efficient method for exploring subsurface deposits for archaeological prospection within 2–3 m of the surface. The subsurface survey will also include a limited amount of hand excavation to 1) determine if archaeological materials are present but not observed in trench walls, 2) sample archaeological horizons observed in trench walls, and/or 3) expose and excavate features observed in trench walls.

A maximum of 15 trenches between 2 and 4 m in depth would be necessary to sample the deep deposits in the project area. This would roughly consist of a sampling interval of one trench no more than 100 m apart, across floodplain alluvium. If necessary, a hand-dug sample unit will be excavated adjacent to the trench to confirm the presence of archaeological deposits. No more than one sq m of hand excavation will be placed adjacent to trenches during this stage of the investigation. It is assumed that Louisville Gas & Electric Company will provide the backhoe and operator. If the areas are not accessible to a backhoe, screened hand-operated bucket augers will be excavated.

All archaeological sites and historic structures discovered within the intensive survey area will be recorded following current SHPO specifications.

## Deliverables

The results of the archival and field research will be documented in a detailed written report. The report will conform to *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports*. The report will describe all cultural resources located during the study and make recommendations for their treatment in relation to potential impacts. In addition, site survey forms will be prepared for each archaeological site recorded and submitted to OSA. A historic structure form will be completed for each historic structure documented and submitted to the Kentucky Heritage Council (KHC). Seven copies of the report will be submitted to Stantec. CRAI will make any necessary revisions to the report requested by the reviewing agencies.

## Schedule

We can initiate the study within 5-10 business days of NTP. It is estimated that the field survey will take between 8 and 10 days to complete. The report of the study can be submitted to DMP within 25-45 working days of the completion of the fieldwork, depending on the results.

APPENDIX B. HISTORIC MATERIALS RECOVERED

#### Table B.1. Historic Materials Database.

																Vessel part	100	MisDate	MaxDate	Comments
Site	Catř	Rac #	Phase	North	East	Dooth	Group	Class	Type	Attribute 1	Attribute 2	Attribute 3	Ν,	WI	Vessel code		110			
153676	1 1			4226298	598075	GSC.	Domestic	Ceramica	Ironstone	Decal	More than one color	Gilt accents	1		Plate	Rim, Body and Base	Y	1930	1958	POPE-GOSSER/CHINA/MADE IN U.S.A.* (Kovel 1986:199)
153(76		:	: :	4226298	598075	GSC	Domestic	Ceremins	Percelain	Decal and painted	Geld		- 1		Platter	Rim, Body and Base	Y	1911		Overglaze hand-painted "NORITAKE CHINA/M/HANDPAINTED/JAPAN AINFORD" (Kovel 1986.74)
						GSC		ABM	Clear glass	Owen's mold		ABM. External thread	1		Commercial food container	Whole Vestel		1903	1955	H.J.HEINZ CO./PATD* w/alominum screw cap
153676		1		4226298	598075		Domestic		Clear guas	Threaded: non-femous metal		ALIAN, External unices	- ;		Communication Communication			1924		TURE FOOD/57
153676		1	1 I	4226298	598075	GSC	Domestic	Container Closures	Commercial Containers			ABM. External thread			Commercial food container	Whole Vessel	v	1929	1954	"HJHEINZ CO/PATD"/" in "O" in diamond/Owens Illinois Glass Co. Toledo. OH (Toulouse 1972:403)
153076	4		1	4226298	598075	GSC	Domestic	ABM	Clear glass	Owen's mold						Whole Vessel		1940	1054	Graduated tick marks on body: "ABBOTT/LABORATORIES"/T" in "O" in diamond/"Duraglis" Owens IL Glass
151/76		- 1	1	4226298	598075	GSC	Domestic	ABM	Clear glass	Owen's mold	Embossed	ABM, External thread	1		Medicine	whole vessel	1	1940	1934	Co. (Toulouse 1972: 403) walterning screw cap
		-							-											
153076				4226298	598075	GSC	Domestic	Container Closures	Commercial Containers	Threaded: non-ferrous metal			1					1924		Aluminum screw cap THYSIOL/SALT (auline solution)
					598075	GSC	Domestic	ABM	Amber glass	Individual section	Embossed	ARM External thread	1		Liquor / Beer / Wine	Whole Vessel	Y	1929		"FF" in circle on body/Foster-Forber Glass Co. Marion, IN (Toulouse 1972:197)
151176				4226298							Zameosacu	ABM	i		Misc bottle	Base		1925		
153176		1		4226298	598075	GSC	Domestic	ABM	Light green glass	Individual section		ABAL External thread	;		Medicine	Rim with Body		1903		Alaminum screw-cap present
153£76	3 8		1	4226298	598075	GSC	Domestic	ABM	Clear glass			ADAL External diread			Morraic	Kan was book		1924		Aluminum screw-cap "ISO SALT"
1531776	8		1	4226298	598075	GSC	Domestic	Container Closures	Commercial Containers	Threaded: non-ferrous metal			1					1903		Antique Revesp 100 Mar.
153176		1	i	4226298	598075	GSC	Domestic	ARM	Cobalt glass			ABM, External thread	1		Medicine	Rim with Body		1903		'UNBO/BUTT/SPANIS" Jumbo Peanut Butter
153176				4226298	598075	GSC	Domestic	ABM	Clear glass		Embossed	ABM, External thread	2		Commercial food container	Rim with Body		1903		"UNBO/BUTL /SPANIS" Jumbs Peanut Butter
153176			: :	4226298	598075	GSC	Domestic	Container Closures	Home Canning Jars	Mason zine with liner			1					1869	1950	
								Glass Tableware	Pross mold	Clear	molded design				Bowl	Rim. Body and Base		1864		
153176			1	4226298	598075	GSC	Domestic				moided design				Bowl	Rim. Body and Base		1864		Hobasik
153176		1	1	4226298	598075	GSC	Domestic	Glass Tableware	Press mold	Clear	moided design		:		Tumbler	Body with Bare		1864		
153176	3 11	1	1	4226298	598075	GSC	Domestic	Glass Tableware	Press mold	Clear					Immeler	Body was 25494		1004		
153676	1 12			4226298	598075	GSC	Architecture	Construction Materials	Marble	Unknown/indeterminate			1	113.3						Henla
153676				4226298	598075	GSC	Clothing	Footwear	Sole / Heel	Rubber			2							Hech
153176			: :	4226298	598075	GSC	Personal	Personal froms	Other	Other metal			1				Y	1933		Nickle plated mini miners flashlight "CHALLENGE" (www.flashlightmuseum.com)
								Health and Grooming	Connetic container	Glass			1					1830	1960	Opaque white gluss
151676				4226298	598075	GSC	Personal													

**Project Maps** 

Figure 1.

Location Map

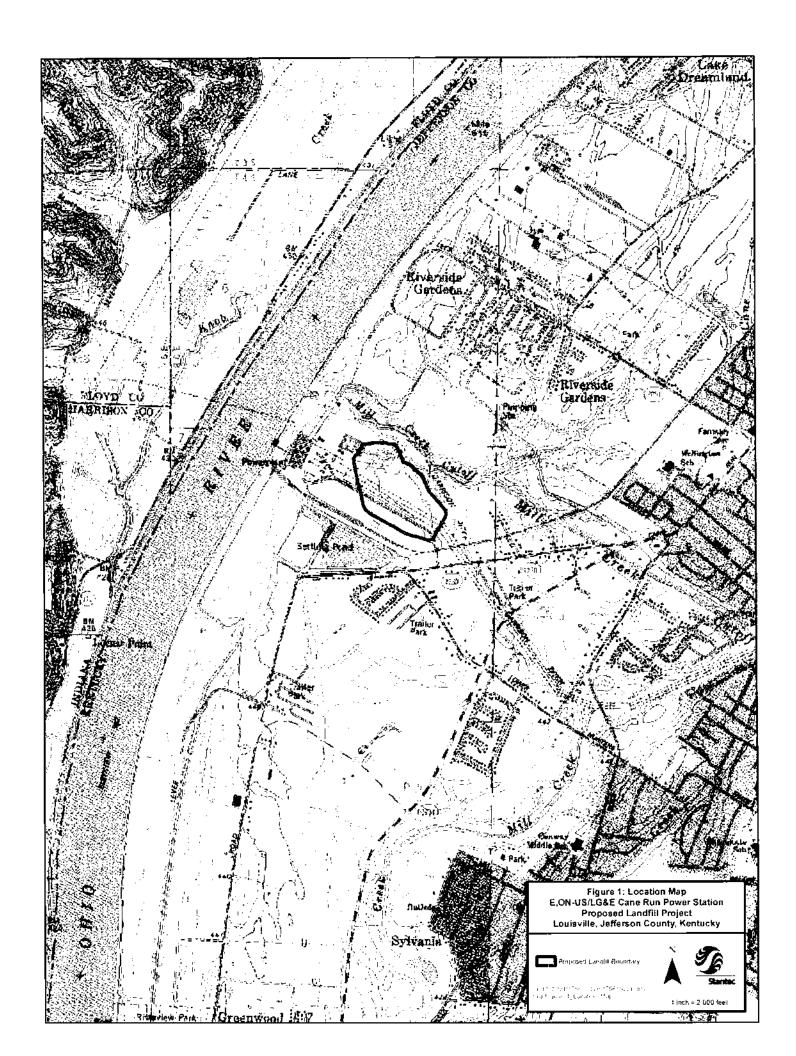
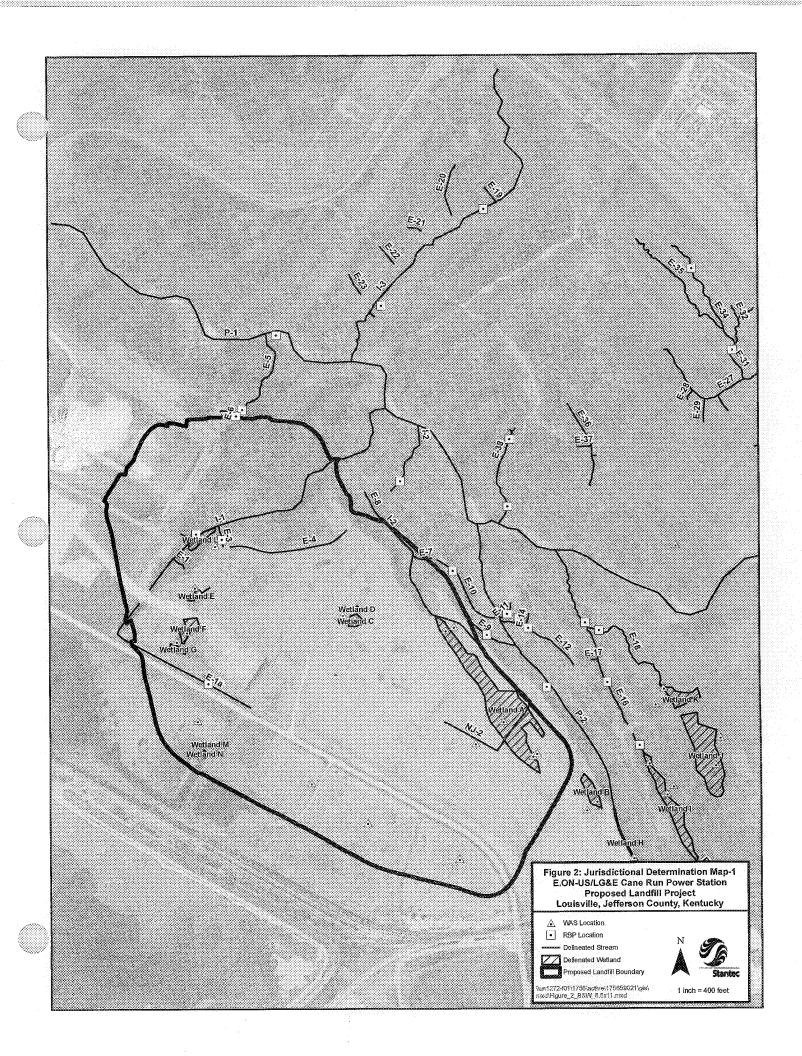


Figure 2
Jurisdictional Waters of the US Map



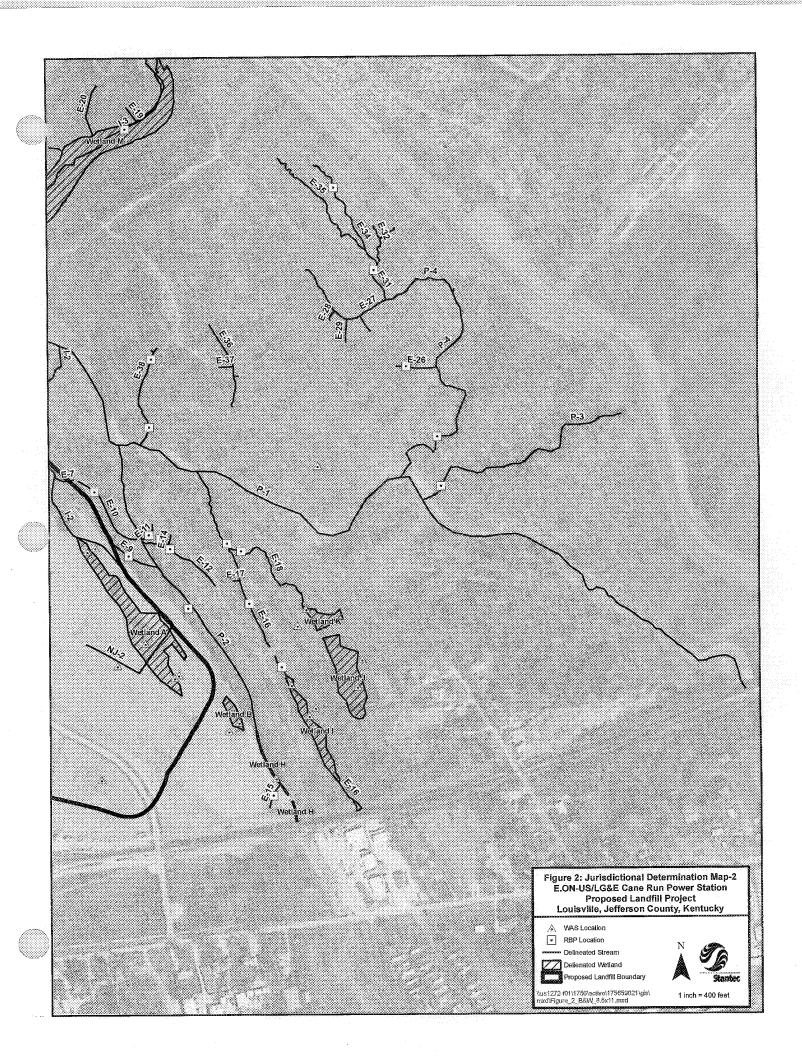


Figure 3.
Proposed Impacts Map

Wetland L 0.093 acre PFO1 Wetland A 1.505 acres PEM1 Figure 3: Proposed Project Impacts - 1 E.ON-US/LG&E Cane Run Power Station Proposed Landfill Project Louisville, Jefferson County, Kentucky m Impacted Streams Impacted Wetland Proposed Landfill Boundary \\us1272-f01\1755\ective\175659021\gis\ mxd\Figure\_3\_B&W\_8.5x11.mxd 1 inch = 300 feet